REFERENCES

Abdel-Khalek, N.A., Omar, A.M.A., and Barakat, Y. (1999) Relationship of structure to properties of some anionic surfactants as collectors in the flotation process.1.effect of chain length. Journal of Chemical and Engineering Data, 44, 133-137.

Atkin, R., Craig, V.S.J., and Biggs, S. (2000) Adsorption kinetics and structural arrangements of cationic surfactants on silica surfaces. Langmuir, 16, 9374-9380.

Behrends, T., Holzheu, S., and Herrmann, R. (1999) A three-site model to describe the adsolubilization of aromatic compound at surfactant covered silica. Acta Hydrochemica et Hydrobiologica, 27(6), 422-429.

Behrends, T., and Hermann, R. (2000) Adsolubilization of anthracene on surfactant covered silica in dependence on pH: indications for different adsolubilization in admicelle and hemimicelle. Journal of Colloid and Interface Science, 162, 15-23.

Chorro, M., Chorro, C., Dolladile, O., Partyka, S., and Zana, R. (1999) Adsorption mechanism of conventional and dimeric cationic surfactant on silica surface: Effect of the state of the surface. Journal of Colloid and Interface Science, 210, 134-143.

Dickson, J. and O'Haver, J. (2002) Adsorption of naphthalene and α-naphthol in C_nTAB admicelles. Langmuir, 18, 9171-9176.

Downer, A., Eastoe, J., Pitt, A.R., Simister, E.A., and Penfold J. (1999) Effects of hydrophobic chain structure on adsorption of fluorocarbon surfactants with either CF_3- or H-CF_2- terminal groups. Langmuir, 15, 7591-7599.

Esumi, K., Matoba, M., and Yamamaka, Y. (1996) Characterization of adsorption of quaternary ammonium cationic surfactant and their adsolubilization behaviors on silica. Langmuir, 12, 2130-2135.

Esumi, K., Maedomari, N., and Torigoe, K. (2001) Adsolubilization of 2-naphthol by binary mixtures of cationic and nonionic surfactants on silica. Langmuir, 17, 7350-7354.

Factor, B., Muegge, B., Workman, S., Bolton, E., Bos, J., and Richter M.M. (2001) Surfactant chain length effects on the light emission of tris(2,2'-bipyridyl)ruthenium(II)/tripropylamine electrogenerated chemiluminescene. Analitycal Chemistry, 73, 4621-4624.

Harwell, J.H. (1991) Factors affecting surfactant performance in groundwater remediation application. Sabatini, D.A., and Knox, R.C., (Eds.). 1991 Colloid Interfacial and Surfactant Phenomenon. New York: Marcel Dekker.

Holzheu, S., Behrends, T., and Herrmann, S. (2000) Determination of distribution ratios of aromatic compounds between aqueous solution and surfactant covered silica by chromatographic method. Scamehorn, J.F., and Harwell, J.H., (Eds.). (2000) Surfactant-Based Separation. New York: Marcel Dekker.

Jodar-Reyes, A.B., Ortega-Vinuesa, J.L., Martin-Rodriguez, A., and Leermakers, F.A.M. (2002) Modeling the effect of structural details of nonionic surfactants on micellization in solution and adsorption onto hydrophobic surfaces. Langmuir, 18, 8706-8713.

Kanjanakhunthakul, T. (2002) The effects of ionic strength on the adsolubilization of toluene and acetophenone into CTAB admicelles on precipitated silica. M.S. Thesis, The Petroleum and Petrochemical College, Chulalongkorn University.

Kittiyanan, B., O'Haver, J.H., Harwell, J.H., and Osuwan, S. (1996) Adsolubilization of styrene and isoprene into cetyltrimethyl ammonium bromide admicelle on precipitated silica. Langmuir, 12, 2162-2168.

Monticone, V., and Treiner, C. (1995) Effect of pH and ionic strength on the adsorption of cetylpyridium chloride and the coadsorption of phenoxypropanol at a silica/water interface. Colloids and Surface A, 285-293.

Nguyen, C.M., Christian, C.D., and Scamehorn, J.F. (1988) Experimental measurement of solubilization isotherm for organic solutes in aqueous micellar solution. Physical Chemistry, 23, 328-336.

Penfold, J., Staples, E.J., Tucker, I., and Thomas, R.K. (2000) Adsorption of mixed cationic and nonionic surfactants at the hydrophilic silicon surface from

aqueous solution: The effect of solution composition and concentration. Langmuir, 16, 8879-8883.

Penfold, J., Staples, E.J., Tucker, I., and Thomas, R.K. (2002) Adsorption of mixed anionic and nonionic surfactants at the hydrophilic silicon surface. Langmuir, 18, 5755-5760.

Pradubmook, T., O'Haver, J.H., Malakul, P., and Harwell, J.H. (2003) Effect of pH on adsolubilization of toluene and acetophenone into adsorbed surfactant on precipitated silica. Colloids and Surfaces A, 224, 93-98.

Rosen, M.J. (1989) Surfactant and Interfacial Phenomena, 2nd ed., New York: John Willy and Sons.

Rouse, J.D., Sabatini, D.A., Deeds, N.E., Brown, R.E., and Harwell, J.H. (1995) Micellar solubilization of unsaturated hydrocarbon concentrations as evaluated by semiequilibrium dialysis. Environmental Science and Technology, 29, 2484-2489.

Scamehorn, J.F., Schechter, R.S., and Wade, W.H. (1981) Adsorption of surfactants on mineral oxide surfaces from aqueous solution I: isomerically pure anionic surfactants. Colloid and Surface Science A, 85, 463-477.

Thakulsukanant, C., Lobban, L.L., Osuwan, S., and Waritswat, A. (1997) Adsolubilization and stability characteristics of hydrocarbon aggregate chemically bonded to porous silica. Langmuir, 19, 4595-4599.

Yeskie, M.A. and Harwell, J.H. (1988) On the structure of aggregates of adsorbed surfactant: The surface charge density at the hemimicelle/admicelle transition. Physical Chemistry, 92, 2346-2352.

APPENDIX

Table A-1 Adsorption isotherm of single-surfactant system

CTAB		Triton X-165		Triton X-305	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
18.18	45.54	2.64	9.00	1.77	5.69
38.07	48.31	3.27	18.33	3.50	12.50
118.13	46.80	6.49	37.67	10.50	37.63
197.48	62.98	9.98	50.60	16.98	75.50
316.62	84.48	16.93	76.87	26.29	142.88
395.91	102.26	27.91	102.20	31.62	209.56
475.37	115.83	35.26	118.47	45.49	362.81
515.11	122.20	53.83	154.20	57.98	550.63
554.23	144.14	72.40	189.93	69.03	774.31
593.35	166.13	109.89	252.87	71.78	1205.63
628.61	284.70	126.33	341.67	74.60	1635.00
662.55	436.33	141.83	454.20	74.38	2140.63
687.95	801.25	144.99	625.17	-	-
686.81	1829.74	148.15	796.13	-	-
682.28	2942.97	147.09	1322.67	-	-
692.46	4688.47	149.31	1767.33	-	-
632.88	9178.10	146.67	2333.33	-	-
651.56	10711.05	148.69	2782.67	-	-

Table A-2 Adsorption isotherm of mixed-surfactant systems of CTAB and Triton X-165 at ratio 3:1

Ratio 3:1					
Total concentration		**CTAB concentration**		**Triton X-165 concentration**	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
18.81	29.66	118.66	3.47	4.40	14.94
30.77	30.83	123.33	4.14	7.39	15.31
38.74	31.51	126.03	4.75	9.38	15.44
58.62	34.51	138.03	7.47	14.36	16.00
78.50	37.51	150.03	9.10	19.32	17.00
118.31	42.35	169.38	14.81	29.31	17.38
157.74	56.45	225.81	17.34	39.04	24.13
197.11	72.18	288.71	23.35	48.79	30.38
235.99	100.32	401.28	35.18	58.36	41.13
274.22	144.48	577.92	57.32	67.74	56.56
312.13	196.71	786.85	71.83	76.82	79.50
349.88	252.94	1011.78	91.83	85.90	102.44
358.81	279.69	1118.74	96.90	87.90	115.13
367.87	303.24	1212.95	101.64	89.95	126.19
373.25	418.79	1675.17	166.18	90.94	163.94
377.26	568.45	2273.80	249.65	91.49	212.88
372.89	927.63	3710.50	424.58	88.88	340.50
377.41	1064.77	4259.08	494.29	89.48	388.06

Ratio 3:1					
Total concentration		**CTAB concentration**		**Triton X-165 concentration**	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
392.46	2188.42	8753.68	1192.46	90.93	726.88
400.67	2983.32	11933.27	1668.41	91.05	973.75
381.98	4450.44	17801.77	3135.24	92.25	1193.75
373.90	5652.60	22610.40	4451.75	96.88	1328.13
382.10	6447.50	25789.99	4598.42	91.73	1706.88

Table A-3 Adsorption isotherm of mixed-surfactant systems of CTAB and Triton X-165 at ratio 1:1

Ratio 1:1					
Total concentration		**CTAB concentration**		**Triton X-165 concentration**	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
10.44	38.89	5.90	2.62	4.95	26.19
14.15	46.31	7.85	3.71	6.76	30.94
17.99	50.28	9.82	4.57	8.67	33.38
29.50	62.40	15.74	6.57	14.36	41.06
37.31	67.31	19.68	7.98	18.24	43.94
56.96	75.97	29.61	9.85	28.03	49.25
76.20	95.11	39.57	10.86	37.51	62.25
95.72	107.04	49.50	12.38	47.20	70.00
114.97	125.79	59.40	14.89	56.72	82.13
133.88	153.08	69.26	18.59	66.01	99.75
153.14	171.42	79.17	20.85	75.53	111.69
172.13	196.85	88.95	26.14	84.91	127.38
190.95	226.20	98.83	29.24	94.13	146.69
209.34	266.53	108.31	42.32	103.21	169.69
226.19	345.34	117.13	71.67	111.48	213.13
244.50	387.51	125.74	106.38	120.85	228.75
262.27	443.19	134.61	134.76	129.75	256.38
279.64	508.90	143.80	155.08	138.23	294.25

Ratio 1:1					
Total concentration		**CTAB concentration**		**Triton X-165 concentration**	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
296.35	591.20	152.38	190.51	146.49	337.69
304.00	899.90	161.54	211.53	148.18	545.44
309.97	1250.77	169.99	250.25	148.98	775.63
312.84	1679.02	171.57	460.63	150.35	991.25
315.99	2100.31	175.14	621.39	151.13	1221.88
319.80	3005.12	177.18	1070.44	152.98	1675.63
321.23	3969.29	173.32	1666.98	155.53	2111.88
323.48	4913.00	172.45	2188.71	157.45	2563.75

Table A-4 Adsorption isotherm of mixed-surfactant systems of CTAB and Triton X-165 at ratio 1:3

Ratio 1:3					
Total concentration		**CTAB concentration**		**Triton X-165 concentration**	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
2.83	29.23	0.95	1.35	2.03	24.31
9.88	52.88	2.92	2.08	7.24	44.13
17.18	70.60	4.81	4.72	12.68	58.13
28.15	96.25	7.72	7.06	20.84	79.00
35.59	110.17	9.57	10.84	26.43	89.31
54.23	144.29	14.34	16.48	40.36	116.06
72.93	176.70	19.09	22.70	54.36	141.13
91.82	204.56	23.54	36.59	68.63	159.25
109.47	263.26	27.71	57.25	81.97	200.88
127.26	318.42	31.42	89.45	95.61	234.88
143.48	413.01	35.20	119.97	107.88	303.06
161.85	453.85	39.10	147.52	121.93	326.75
178.81	529.70	43.57	160.74	134.56	385.94
189.41	564.71	46.00	175.12	142.60	409.94
201.02	774.58	49.05	223.75	151.25	568.88
202.64	933.88	48.50	287.54	152.85	678.75
209.24	1268.92	49.27	393.23	158.15	921.25
216.03	1599.19	51.82	454.45	162.90	1177.50

Ratio 1:3					
Total concentration		**CTAB concentration**		**Triton X-165 concentration**	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
219.17	2020.86	50.23	619.19	166.20	1470.00
207.62	2809.41	52.33	691.84	163.15	1921.25
212.55	3686.35	52.83	929.30	169.48	2513.13
210.61	4734.79	52.01	1199.81	170.98	3225.63
213.52	6661.95	52.16	1696.10	178.58	4535.63

Table A-5 Adsorption isotherm of mixed-surfactant systems of CTAB and Triton X-305 at ratio 3:1

Ratio 3:1					
Total concentration		**CTAB concentration**		**Triton X-305 concentration**	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
19.69	7.63	14.97	0.74	4.87	3.33
39.67	8.25	29.95	1.14	9.81	4.67
59.53	11.80	44.89	2.78	14.79	5.33
79.17	20.87	59.70	7.43	19.71	7.33
98.46	38.58	74.42	14.40	24.47	13.33
117.51	62.36	88.80	30.02	29.23	19.33
135.86	103.45	102.59	60.13	33.85	28.67
154.30	142.59	116.83	79.37	38.37	40.67
172.16	195.99	131.13	96.63	42.60	60.00
189.57	260.80	145.60	109.89	46.56	86.00
205.64	358.99	158.18	170.62	50.52	112.00
222.15	446.37	172.58	185.62	54.08	148.00
238.55	536.27	186.59	210.27	57.72	182.00
254.62	634.45	200.62	234.57	61.20	220.00
268.65	783.76	214.73	256.70	63.69	282.67
279.87	1003.28	229.14	271.44	64.77	380.67
286.10	1347.61	241.47	338.23	64.20	520.00
291.11	1722.22	250.13	496.67	64.27	643.33

Ratio 3:1					
Total concentration		**CTAB concentration**		**Triton X-305 concentration**	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
292.89	2177.85	250.14	871.54	65.67	733.33
288.12	2797.07	248.53	1286.81	64.53	886.67
291.77	3705.63	247.07	2073.18	67.87	1053.33
290.42	4739.58	252.25	2693.85	66.67	1333.33
289.83	5754.24	251.23	3469.22	67.87	1553.33

Table A-6 Adsorption isotherm of mixed-surfactant systems of CTAB and Triton X-305 at ratio 1:1

Ratio 1:1					
Total concentration		**CTAB concentration**		**Triton X-305 concentration**	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
11.66	8.38	5.92	1.95	5.25	18.87
19.44	13.90	9.82	4.57	9.04	23.93
30.89	27.80	15.74	6.53	14.75	31.20
38.25	43.74	19.67	8.35	18.35	41.13
47.34	66.47	24.39	15.33	22.79	55.13
55.92	102.09	28.85	28.64	26.95	76.20
64.45	138.80	32.16	70.91	31.28	93.07
71.56	210.91	33.37	165.68	35.11	122.33
79.32	267.12	35.72	231.88	39.09	147.67
86.91	327.35	38.04	299.06	42.96	176.07
94.53	386.70	40.44	363.95	46.82	204.47
101.26	468.61	42.48	437.94	50.05	248.80
109.11	522.27	45.31	492.21	53.96	275.93
114.88	628.10	46.50	587.43	56.67	333.33
122.45	688.64	49.40	639.99	60.33	366.80
128.81	779.67	51.16	721.01	63.34	416.47
135.36	865.92	53.35	791.27	66.37	465.67
142.06	948.43	55.60	860.10	69.51	512.20

Ratio 1:1					
Total concentration		**CTAB concentration**		**Triton X-305 concentration**	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
148.39	1040.21	58.20	919.95	72.22	569.47
154.37	1140.81	59.33	1016.63	75.12	622.00
160.51	1237.37	65.09	1122.76	76.47	713.33
165.77	1355.75	64.18	1270.39	79.31	767.33
170.43	1489.24	65.91	1352.33	81.77	830.67
169.99	1750.37	60.77	1605.75	84.11	897.33
169.22	2019.43	63.02	1674.61	84.97	1000.67
163.62	2409.57	63.00	1799.92	86.27	1093.33
166.32	2591.93	60.13	1996.83	87.00	1200.00
161.02	2974.59	62.91	2177.25	87.57	1310.67
165.41	3364.72	62.51	2437.37	87.28	1568.00

Table A-7 Adsorption isotherm of mixed-surfactant systems of CTAB and Triton X-305 at ratio 1:3

Ratio 1:3					
Total concentration		**CTAB concentration**		**Triton X-305 concentration**	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
6.84	29.09	1.88	3.07	2.36	16.07
10.59	35.15	2.86	3.40	5.24	19.00
14.18	45.47	3.83	4.33	8.08	23.07
17.58	60.52	4.70	7.50	10.81	29.87
20.93	76.82	5.64	8.97	13.43	39.13
24.35	91.17	6.61	9.85	16.01	49.87
27.39	115.36	7.47	13.16	18.62	59.47
33.92	152.07	9.27	18.28	21.00	75.00
41.09	222.77	11.58	23.01	26.06	98.53
47.70	307.54	13.06	48.56	31.67	145.67
54.52	387.01	14.64	71.47	37.19	195.20
60.17	495.81	15.71	107.22	42.82	242.00
64.71	632.26	16.92	139.60	47.82	304.53
68.11	797.35	18.13	171.69	52.01	387.33
76.75	831.28	19.92	189.60	55.40	490.00
81.13	971.65	21.17	220.74	62.21	507.13
87.50	1062.57	22.63	246.80	66.28	593.07
89.68	1258.10	24.41	264.69	71.63	646.67

Ratio 1:3					
Total concentration		**CTAB concentration**		**Triton X-305 concentration**	
Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)	Adsorbed surfactant (μmole/g. of silica)	Equilibrium concentration (μM)
93.00	1425.00	24.95	313.63	73.99	775.33
95.14	1621.51	25.22	369.49	77.57	873.33
99.33	2016.76	25.27	493.21	80.43	989.33
98.32	2541.90	26.50	587.46	86.25	1218.67
97.65	3058.66	25.05	748.74	88.08	1548.00
99.94	3501.40	-	-	91.08	1848.00
94.92	4127.09	-	-	95.33	2116.67
99.11	4522.35	-	-	94.73	2506.67
-	-	-	-	93.79	2905.33

Table A-8 Adsolubilization isotherm of toluene in CTAB

Weight of silica = 15 g
Molecular weight of toluene = 92 g/mole
Equation from GC Y = 0.0001X
Where X = Area of head space gas chromatography
Y = Equilibrium concentration of toluene
Density of toluene = 0.867 g/mL
Maximum adsorption of surfactant = 680 μmole/ g. of silica

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
50	384781	38.4781	0.055600855	0.000604357	147759	0.000232078	14.89116478	0.020829975	4.17749E-06	4986.24244
50	384781	38.4781	0.055600855	0.000604357	140196	0.000220199	15.36631848	0.021480349	3.96366E-06	5419.31964
50	384781	38.4781	0.055600855	0.000604357	177785	0.000279238	13.0047487	0.018239358	5.02641E-06	3628.70126
					Average	0.000243839	14.42074399	0.020183227	-	4678.08778
					SD	-	1.24908957	-	-	934.236598

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
100	867411	86.7411	0.12534089	0.001362401	385918	0.000606143	30.25032109	0.041424591	1.09112E-05	3796.53559
100	867411	86.7411	0.12534089	0.001362401	375312	0.000589485	30.91665457	0.042298468	1.06113E-05	3986.1818
100	867411	86.7411	0.12534089	0.001362401	377135	0.000592348	30.80212261	0.042148376	1.06628E-05	3952.83616
					Average	0.000595992	30.65636609	0.041957145	-	3911.85118
					SD	-	0.356277699	-	-	101.248441

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
200	1740379	174.0379	0.251484766	0.00273353	756376	0.001188004	61.82105804	0.081149054	2.13863E-05	3794.44037
200	1740379	174.0379	0.251484766	0.00273353	801929	0.001259552	58.9591413	0.07768421	2.26744E-05	3426.06902
200	1740379	174.0379	0.251484766	0.00273353	796924	0.00125169	59.27358587	0.078066177	2.25329E-05	3464.53998
					Average	0.001233082	60.01792841	0.07896648	-	3561.68312
					SD	-	1.569450928	-	-	202.489393

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
300	2533631	253.3631	0.36610968	0.003979453	1038325	0.001630847	93.94422478	0.118325975	2.93595E-05	4030.24869
300	2533631	253.3631	0.36610968	0.003979453	1171764	0.001840434	85.56077457	0.108916811	3.31332E-05	3287.24299
300	2533631	253.3631	0.36610968	0.003979453	1209152	0.001899157	83.21183283	0.106244351	3.41906E-05	3107.41847
					Average	0.001790146	87.57227739	0.111162379	-	3474.97005
					SD	-	5.641867332	-	-	489.218753

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
350	3167919	316.7919	0.457764296	0.004975699	1391658	0.002185811	111.595528	0.137501408	3.93522E-05	3494.12509
350	3167919	316.7919	0.457764296	0.004975699	1433120	0.002250933	108.9906328	0.134724221	4.05248E-05	3324.48559
350	3167919	316.7919	0.457764296	0.004975699	1469591	0.002308216	106.6993026	0.132266512	4.15563E-05	3182.82348
					Average	0.00224832	109.0951545	0.134830714	-	3333.81139
					SD	-	2.449785595	-	-	155.860195

[Tolene]eq. (mol/l)	[Toluene] ads.(μmol/l)	SD
0.000243839	14.420744	1.24908957
0.000595992	30.656366	0.356277699
0.001233082	60.017928	1.569450928
0.001790146	87.572277	5.641867332
0.00224832	109.09515	2.449785595

X admicelle	K
0.020183227	4678.0878
0.041957145	3911.8512
0.07896648	3561.6831
0.111162379	3474.9701
0.134830714	3333.8114

Table A-9 Adsolubilization isotherm of toluene in Triton X-165

Weight of silica = 15 g
Molecular weight of toluene = 92 g/mole
Equation from GC Y = 0.0001X
Where X = Area of head space gas chromatography
Y = Equilibrium concentration of toluene
Density of toluene = 0.867 g/mL
Maximum adsorption of surfactant = 150 μmole/ g. of silica

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
50	384781	38.4781	0.055600855	0.000604357	345789	0.000543114	2.449714783	0.016069002	9.77652E-06	1643.63138
50	384781	38.4781	0.055600855	0.000604357	355453	0.000558293	1.842563478	0.012134697	1.00498E-05	1207.46029
50	384781	38.4781	0.055600855	0.000604357	361619	0.000567978	1.455177826	0.009607977	1.02241E-05	939.73725
					Average	0.000556462	1.915818696	0.012603892	-	1263.60964
					SD	-	0.501298997	-	-	355.290443

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
100	867411	86.7411	0.12534089	0.001362401	755762	0.001187039	7.014469783	0.044674034	2.13689E-05	2090.60588
100	867411	86.7411	0.12534089	0.001362401	792074	0.001244073	4.733128913	0.030588982	2.23958E-05	1365.83782
100	867411	86.7411	0.12534089	0.001362401	767375	0.001205279	6.284870435	0.040214196	2.16973E-05	1853.4168
					Average	0.00121213	6.010823043	0.038492404	-	1769.9535
					SD	-	1.165098932	-	-	369.522367

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
200	1740379	174.0379	0.251484766	0.00273353	1441570	0.002264205	18.77300022	0.111232248	4.07638E-05	2728.70006
200	1740379	174.0379	0.251484766	0.00273353	1469616	0.002308256	17.01097978	0.101855458	4.15571E-05	2450.97888
200	1740379	174.0379	0.251484766	0.00273353	1542986	0.002423494	12.40142978	0.076362812	4.36322E-05	1750.14749
					Average	0.002331985	16.06180326	0.096483506	-	2309.94215
					SD	-	3.290126062	-	-	504.291388

Toluene(ul)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
300	2533631	253.3631	0.36610968	0.003979453	2155731	0.003385904	23.74197826	0.136650788	6.09645E-05	2241.48306
300	2533631	253.3631	0.36610968	0.003979453	2021022	0.003174323	32.20521761	0.176752444	5.71538E-05	3092.57595
300	2533631	253.3631	0.36610968	0.003979453	2091022	0.003284268	27.80739152	0.156390526	5.91339E-05	2644.68296
					Average	0.003281498	27.9181958	0.15659792	-	2659.58066
					SD	-	4.232707556	-	-	425.741978

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
350	3167919	316.7919	0.457764296	0.004975699	2547130	0.004000655	39.0017437	0.206356528	7.20372E-05	2864.58331
350	3167919	316.7919	0.457764296	0.004975699	2516579	0.00395267	40.92114348	0.214335315	7.11729E-05	3011.47566
350	3167919	316.7919	0.457764296	0.004975699	2481910	0.003898217	43.09926109	0.223197442	7.0192E-05	3179.81212
					Average	0.003950514	41.00738275	0.214629762	-	3018.6237
					SD	-	2.050119534	-	-	157.735923

[Tolene]eq. (mol/l)	[Toluene] ads.(µmol/l)	SD
0.000556462	1.9158187	0.501298997
0.00121213	6.010823	1.165098932
0.002331985	16.061803	3.290126062
0.003281498	27.918196	4.232707556
0.003950514	41.007383	2.050119534

X admicelle	K
0.012603892	1263.609641
0.038492404	1769.953501
0.096483506	2309.942145
0.15659792	2659.580656
0.214629762	3018.623697

Table A-10 Adsolubilization isotherm of toluene in Triton X-305

Weight of silica = 15 g
Molecular weight of toluene = 92 g/mole
Equation from GC Y = 0.0001X
Where X = Area of head space gas chromatography
Y = Equilibrium concentration of toluene

Density of toluene = 0.867 g/mL
Maximum adsorption of surfactant = 75 μmole/ g. of silica

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
50	384781	38.4781	0.055600855	0.000604357	384742	0.000604296	0.002450217	3.26685E-05	1.08779E-05	3.00319767
50	384781	38.4781	0.055600855	0.000604357	373253	0.000586251	0.72425913	0.009564427	1.05531E-05	906.318154
50	384781	38.4781	0.055600855	0.000604357	379691	0.000596362	0.319784783	0.004245694	1.07351E-05	395.496891
					Average	0.000595636	0.348831377	0.004614263	-	434.939414
					SD	-	0.361780051	-	-	452.947306

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
100	867411	86.7411	0.12534089	0.001362401	849012	0.001333503	1.155937174	0.015178556	2.40059E-05	632.28529
100	867411	86.7411	0.12534089	0.001362401	832686	0.00130786	2.18163587	0.028266256	2.35442E-05	1200.5616
100	867411	86.7411	0.12534089	0.001362401	858761	0.001348815	0.543445652	0.007193816	2.42816E-05	296.266722
					Average	0.001330059	1.293672899	0.016879543	-	709.704537
					SD	-	0.827734948	-	-	457.091469

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
200	1740379	174.0379	0.251484766	0.00273353	1632064	0.002563405	6.805007609	0.08318571	4.61517E-05	1802.44039
200	1740379	174.0379	0.251484766	0.00273353	1599312	0.002511963	8.862687609	0.105680939	4.52253E-05	2336.76376
200	1740379	174.0379	0.251484766	0.00273353	1674539	0.002630118	4.136469565	0.05227008	4.73531E-05	1103.8364
					Average	0.002568495	6.601388261	0.08037891	-	1747.68018
					SD	-	2.369679277	-	-	618.28511

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
300	2533631	253.3631	0.36610968	0.003979453	2305841	0.003621674	14.31115435	0.160239272	6.52109E-05	2457.24505
300	2533631	253.3631	0.36610968	0.003979453	2278173	0.003578217	16.04942652	0.176271583	6.44282E-05	2735.93723
300	2533631	253.3631	0.36610968	0.003979453	2355203	0.003699205	11.20993304	0.130030643	6.66074E-05	1952.19529
					Average	0.003633032	13.85683797	0.155513833	-	2381.79252
					SD	-	2.451525405	-	-	397.281603

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
350	3167919	316.7919	0.457764296	0.004975699	2793610	0.00438779	23.51636978	0.2387052	7.90108E-05	3021.17331
350	3167919	316.7919	0.457764296	0.004975699	2876216	0.004517535	18.32655804	0.196370234	8.1348E-05	2413.95254
350	3167919	316.7919	0.457764296	0.004975699	2697739	0.00423721	29.53956957	0.282568311	7.62983E-05	3703.46994
					Average	0.004380845	23.7941658	0.239214582	-	3046.1986
					SD	-	5.611665066	-	-	645.122841

[Tolene]eq. (mol/l)	[Toluene] ads.(µmol/l)	SD
0.00059564	0.3488314	0.361780051
0.00133006	1.2936729	0.827734948
0.0025685	6.6013883	2.369679277
0.00363303	13.856838	2.451525405
0.00438084	23.794166	5.611665066

X admicelle	K
0.004614263	434.9394143
0.016879543	709.7045368
0.08037891	1747.680183
0.155513833	2381.792521
0.239214582	3046.198598

Table A-11 Adsolubilization isotherm of toluene in mixed-surfactant systems of CTAB and Triton X-165 at ratio 3:1

Weight of silica = 15 g
Molecular weight of toluene = 92 g/mole
Equation from GC Y = 0.0001X
Where X = Area of head space gas chromatography
Y = Equilibrium concentration of toluene
Density of toluene = 0.867 g/mL
Maximum adsorption of surfactant = 380 μmole/ g. of silica

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
50	384781	38.4781	0.055600855	0.000604357	246062	0.000386478	8.715171957	0.022420457	6.95684E-06	3222.79443
50	384781	38.4781	0.055600855	0.000604357	238984	0.000375361	9.159855	0.023537513	6.75672E-06	3483.57248
50	384781	38.4781	0.055600855	0.000604357	252518	0.000396618	8.309566739	0.021399336	7.13937E-06	2997.36924
					Average	0.000386152	8.728197899	0.022452435	-	3234.57872
					SD	-	0.425293767	-	-	243.31574

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
100	867411	86.7411	0.12534089	0.001362401	501416	0.00078755	22.9940337	0.057058	1.41769E-05	4024.72022
100	867411	86.7411	0.12534089	0.001362401	490677	0.000770683	23.66872304	0.058634028	1.38732E-05	4226.41373
100	867411	86.7411	0.12534089	0.001362401	475375	0.000746649	24.63008783	0.060870629	1.34406E-05	4528.87518
					Average	0.000768294	23.76428152	0.058854219	-	4260.00304
					SD	-	0.822202436	-	-	253.750342

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
200	1740379	174.0379	0.251484766	0.00273353	857788	0.001347287	55.44973891	0.127339011	2.4254E-05	5250.21901
200	1740379	174.0379	0.251484766	0.00273353	845707	0.001328312	56.20874087	0.128857438	2.39124E-05	5388.72734
200	1740379	174.0379	0.251484766	0.00273353	887017	0.001393195	53.61339522	0.123643309	2.50806E-05	4929.84013
					Average	0.001356264	55.090625	0.126613253	-	5189.59549
					SD	-	1.334420048	-	-	235.37369

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
300	2533631	253.3631	0.36610968	0.003979453	1252859	0.001967806	80.46589304	0.174748867	3.54266E-05	4932.69585
300	2533631	253.3631	0.36610968	0.003979453	1266594	0.001989379	79.60297674	0.173199437	3.58151E-05	4835.93428
300	2533631	253.3631	0.36610968	0.003979453	1243465	0.001953051	81.0560813	0.175805254	3.5161E-05	5000.01163
					Average	0.001970078	80.3749837	0.174584519	-	4922.88059
					SD	-	0.730805447	-	-	82.47787

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
350	3167919	316.7919	0.457764296	0.004975699	1542499	0.002422729	102.1187783	0.211812489	4.36184E-05	4856.03073
350	3167919	316.7919	0.457764296	0.004975699	1493409	0.002345626	105.2029109	0.216822506	4.223E-05	5134.32434
350	3167919	316.7919	0.457764296	0.004975699	1470648	0.002309876	106.6328954	0.219123895	4.15862E-05	5269.14411
					Average	0.002359411	104.6515282	0.21591963	-	5086.49973
					SD	-	2.307017688	-	-	210.668129

[Tolene]eq. (mol/l)	[Toluene] ads.(µmol/l)	SD
0.00038615	8.7281979	0.425293767
0.00076829	23.7642815	0.822202436
0.00135626	55.090625	1.334420048
0.00197008	80.3749837	0.730805447
0.00235941	104.651528	2.307017688

X admicelle	K
0.022452435	3234.578718
0.058854219	4260.003042
0.126613253	5189.595494
0.174584519	4922.880587
0.21591963	5086.499727

Table A-12 Adsolubilization isotherm of toluene in mixed-surfactant systems of CTAB and Triton X-165 at ratio 1:1

Weight of silica = 15 g
Molecular weight of toluene = 92 g/mole
Equation from GC Y = 0.0001X
Where X = Area of head space gas chromatography
Y = Equilibrium concentration of toluene
Density of toluene = 0.867 g/mL
Maximum adsorption of surfactant = 320 μmole/ g. of silica

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
50	384781	38.4781	0.055600855	0.000604357	301657	0.000473798	5.222355652	0.0160578	8.52872E-06	1882.79046
50	384781	38.4781	0.055600855	0.000604357	302091	0.00047448	5.19508913	0.0159753	8.541E-06	1870.42611
50	384781	38.4781	0.055600855	0.000604357	284142	0.000446288	6.322754565	0.01937577	8.0335E-06	2411.87019
					Average	0.000464855	5.580066449	0.01713629	-	2055.02892
					SD	-	0.643331247	-	-	309.095434

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
100	867411	86.7411	0.12534089	0.001362401	571635	0.00089784	18.5824487	0.054883083	1.61624E-05	3395.72729
100	867411	86.7411	0.12534089	0.001362401	572816	0.000899695	18.50825109	0.054675923	1.61958E-05	3375.93463
100	867411	86.7411	0.12534089	0.001362401	576082	0.000904824	18.30306109	0.054102558	1.62881E-05	3321.59245
					Average	0.000900786	18.46458696	0.054553855	-	3364.41812
					SD	-	0.144721374	-	-	38.3857532

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
200	1740379	174.0379	0.251484766	0.00273353	1102084	0.001730991	40.10157717	0.111361848	3.11626E-05	3573.57551
200	1740379	174.0379	0.251484766	0.00273353	1129130	0.00177347	38.40238283	0.107148793	3.19275E-05	3356.00765
200	1740379	174.0379	0.251484766	0.00273353	1150009	0.001806264	37.09063696	0.103868971	3.25179E-05	3194.20613
					Average	0.001770242	38.53153232	0.107459871	-	3374.59643
					SD	-	1.509619138	-	-	190.366589

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
300	2533631	253.3631	0.36610968	0.003979453	1556160	0.002444186	61.41067804	0.161009331	4.40048E-05	3658.9016
300	2533631	253.3631	0.36610968	0.003979453	1568006	0.002462792	60.66644022	0.159369027	4.43399E-05	3594.25944
300	2533631	253.3631	0.36610968	0.003979453	1547270	0.002430223	61.96920196	0.162236122	4.37534E-05	3707.9675
					Average	0.002445734	61.34877341	0.160871493	-	3653.70952
					SD	-	0.653583335	-	-	57.0315598

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
350	3167919	316.7919	0.457764296	0.004975699	1894707	0.002975926	79.99092783	0.199981855	5.35807E-05	3732.34786
350	3167919	316.7919	0.457764296	0.004975699	1859385	0.002920447	82.21007087	0.204395854	5.25816E-05	3887.21411
350	3167919	316.7919	0.457764296	0.004975699	1848494	0.002903341	82.89430978	0.205747035	5.22735E-05	3935.97109
					Average	0.002933238	81.69843616	0.203374915	-	3851.84435
					SD	-	1.517805737	-	-	106.319657

[Tolene]eq. (mol/l)	[Toluene] ads.(µmol/l)	SD
0.00046486	5.5800664	0.643331247
0.00090079	18.464587	0.144721374
0.00177024	38.531532	1.509619138
0.00244573	61.348773	0.653583335
0.00293324	81.698436	1.517805737

X admicelle	K
0.01713629	2055.028919
0.054553855	3364.418124
0.107459871	3374.59643
0.160871493	3653.709515
0.203374915	3851.844354

Table A-13 Adsolubilization isotherm of toluene in mixed-surfactant systems of CTAB and Triton X-165 at ratio 1:3

Weight of silica = 15 g
Molecular weight of toluene = 92 g/mole
Equation from GC Y = 0.0001X
Where X = Area of head space gas chromatography
Y = Equilibrium concentration of toluene
Density of toluene = 0.867 g/mL
Maximum adsorption of surfactant = 210 μmole/ g. of silica

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
50	352984	35.2984	0.051006188	0.000554415	308282	0.000484204	2.808451739	0.013197087	8.71604E-06	1514.11503
50	352984	35.2984	0.051006188	0.000554415	308910	0.00048519	2.768996957	0.0130141	8.7338E-06	1490.0851
50	352984	35.2984	0.051006188	0.000554415	316188	0.000496621	2.311748696	0.010888463	8.93958E-06	1218.00671
					Average	0.000488672	2.629732464	0.01236655		1407.40228
					SD	-	0.276087717	-		164.46085

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
100	741975	74.1975	0.107215388	0.001165385	602799	0.000946788	8.743883478	0.039973156	1.70436E-05	2345.3473
100	741975	74.1975	0.107215388	0.001165385	604564	0.00094956	8.632995435	0.039486242	1.70935E-05	2310.01426
100	741975	74.1975	0.107215388	0.001165385	617621	0.000970068	7.812675217	0.035868781	1.74627E-05	2054.02119
					Average	0.000955472	8.396518043	0.038442727	-	2236.46092
					SD	-	0.508653491	-	-	158.982065

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
200	1574826	157.4826	0.227562357	0.002473504	1207006	0.001895787	23.1086913	0.099132689	3.41299E-05	2904.57356
200	1574826	157.4826	0.227562357	0.002473504	1210867	0.001901851	22.86611978	0.098194275	3.42391E-05	2867.90271
200	1574826	157.4826	0.227562357	0.002473504	1210456	0.001901205	22.8919413	0.098294261	3.42274E-05	2871.79788
					Average	0.001899614	22.95558413	0.098540408	-	2881.42472
					SD	-	0.13322178	-	-	20.1418621

Toluene(µl)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
300	2308043	230.8043	0.333512214	0.003625133	1786499	0.002805969	32.7665687	0.134971503	5.05199E-05	2671.64896
300	2308043	230.8043	0.333512214	0.003625133	1844999	0.002897852	29.09124261	0.121674229	5.21747E-05	2332.05633
300	2308043	230.8043	0.333512214	0.003625133	1768862	0.002778267	33.87463239	0.138901829	5.00211E-05	2776.8675
					Average	0.002827362	31.91081457	0.131849187	-	2593.52426
					SD	-	2.503885142	-	-	232.469017

Toluene(ul)	Area at initial	Toluene (µl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (µmole/g. of silica)	X admicelle	X bulk	K
350	2736851	273.6851	0.39547497	0.004298641	2096248	0.003292476	40.24657978	0.160827692	5.92818E-05	2712.93652
350	2736851	273 6851	0.39547497	0.004298641	2072064	0.003254492	41.76596587	0.165892025	5.85977E-05	2831.03514
350	2736851	273.6851	0.39547497	0.004298641	2054928	0.003227577	42.8425537	0.169443605	5.81129E-05	2915.76501
					Average	0.003258182	41.61836645	0.165387774	-	2819.91222
					SD	-	1.304265821	-	-	101.870697

[Tolene]eq. (mol/l)	[Toluene] ads.(µmol/l)	SD
0.00048867	2.6297325	0.276087717
0.00095547	8.396518	0.508653491
0.00189961	22.955584	0.13322178
0.00282736	31.910815	2.503885142
0.00325818	41.618366	1.304265821

X admicelle	K
0.01236655	1407.402281
0.038442727	2236.460917
0.098540408	2881.424717
0.131849187	2593.524262
0.165387774	2819.912222

Table A-14 Adsolubilization isotherm of toluene in mixed-surfactant systems of CTAB and Triton X-305 at ratio 3:1

Weight of silica = 15 g
Molecular weight of toluene = 92 g/mole
Equation from GC Y = 0.0001X
Where X = Area of head space gas chomatography
Y = Equilibrium concentration of toluene
Density of toluene = 0.867 g/mL
Maximum adsorption of surfactant = 290 μmole/ g. of silica

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
50	384781	38.4781	0.055600855	0.000604357	275053	0.000432013	6.89378087	0.023219688	7.77652E-06	2985.87025
50	384781	38.4781	0.055600855	0.000604357	276800	0.000434757	6.784023696	0.022858453	7.82592E-06	2920.86571
50	384781	38.4781	0.055600855	0.000604357	282074	0.00044304	6.452678913	0.021766303	7.97503E-06	2729.30543
					Average	0.000436603	6.710161159	0.022614815	-	2878.68046
					SD	-	0.229639913	-	-	133.383177

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
100	867411	86.7411	0.12534089	0.001362401	560197	0.000879875	19.30105348	0.062402159	1.5839E-05	3939.78607
100	867411	86.7411	0.12534089	0.001362401	563160	0.000884528	19.11489978	0.061837523	1.59228E-05	3883.59481
100	867411	86.7411	0.12534089	0.001362401	557670	0.000875906	19.459815	0.062883173	1.57675E-05	3988.14665
					Average	0.000880103	19.29192275	0.062374285	-	3937.17584
					SD	-	0.172638797	-	-	52.324772

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
200	1740379	174.0379	0.251484766	0.00273353	990802	0.001556205	47.09298978	0.139703261	2.80155E-05	4986.63508
200	1740379	174.0379	0.251484766	0.00273353	997162	0.001566195	46.69341587	0.138682296	2.81954E-05	4918.61511
200	1740379	174.0379	0.251484766	0.00273353	994579	0.001562138	46.85569565	0.139097234	2.81223E-05	4946.14567
					Average	0.001561513	46.88070043	0.13916093	-	4950.46529
					SD	-	0.200957103	-	-	34.2151015

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
300	2533631	253.3631	0.36610968	0.003979453	1440239	0.002262115	68.69354087	0.191510393	4.07262E-05	4702.3904
300	2533631	253.3631	0.36610968	0.003979453	1451471	0.002279756	67.98787826	0.189916705	4.10439E-05	4627.16547
300	2533631	253.3631	0.36610968	0.003979453	1433465	0.002251475	69.11912478	0.192468515	4.05346E-05	4748.25367
					Average	0.002264449	68.6001813	0.191298538	-	4692.60318
					SD	-	0.571372628	-	-	61.1345235

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
350	3167919	316.7919	0.457764296	0.004975699	1819608	0.002857971	84.70910413	0.226066309	5.14564E-05	4393.35302
350	3167919	316.7919	0.457764296	0.004975699	1847764	0.002902195	82.94017283	0.222395384	5.22529E-05	4256.13769
350	3167919	316.7919	0.457764296	0.004975699	1785385	0.002804219	86.8592013	0.230481838	5.04884E-05	4565.04412
					Average	0.002854795	84.83615942	0.22631451	-	4404.84494
					SD	-	1.962601166	-	-	154.773525

[Tolene]eq. (mol/l)	[Toluene] ads.(μmol/l)	SD
0.000436603	6.7101612	0.229639913
0.000880103	19.291923	0.172638797
0.001561513	46.8807	0.200957103
0.002264449	68.600181	0.571372628
0.002854795	84.836159	1.962601166

X admicelle	K
0.022614815	2878.680462
0.062374285	3937.175839
0.13916093	4950.465286
0.191298538	4692.603179
0.22631451	4404.844943

Table A-15 Adsolubilization isotherm of toluene in mixed-surfactant systems of CTAB and Triton X-305 at ratio 1:1

Weight of silica = 15 g
Molecular weight of toluene = 92 g/mole
Equation from GC Y = 0.0001X
Where X = Area of head space gas chromatography
Y = Equilibrium concentration of toluene
Density of toluene = 0.867 g/mL
Maximum adsorption of surfactant = 170 μmole/ g. of silica

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
50	384781	38.4781	0.05560085	0.000604357	320093	0.000502755	4.064093913	0.023348261	9.04999E-06	2579.92214
50	384781	38.4781	0.05560085	0.000604357	332184	0.000521746	3.304463696	0.019067389	9.39185E-06	2030.20566
50	384781	38.4781	0.05560085	0.000604357	324180	0.000509174	3.807323696	0.021905427	9.16554E-06	2389.97579
					Average	0.000511225	3.725293768	0.021440359	-	2333.36787
					SD	-	0.386401603	-	-	279.19598

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
100	867411	86.7411	0.12534089	0.001362401	658738	0.001034648	13.11010804	0.071596856	1.86254E-05	3844.05077
100	867411	86.7411	0.12534089	0.001362401	657009	0.001031933	13.21873435	0.072147286	1.85765E-05	3883.79825
100	867411	86.7411	0.12534089	0.001362401	656851	0.001031684	13.22866087	0.072197553	1.8572E-05	3887.43915
					Average	0.001032755	13.18583442	0.071980565	-	3871.76272
					SD	-	0.065768511	-	-	24.0681977

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
200	1740379	174.0379	0.25148477	0.00273353	1208368	0.001897926	33.42416935	0.164307759	3.41684E-05	4808.76658
200	1740379	174.0379	0.25148477	0.00273353	1218431	0.001913731	32.79195043	0.161702426	3.4453E-05	4693.42446
200	1740379	174.0379	0.25148477	0.00273353	1224254	0.001922877	32.42611413	0.160187406	3.46177E-05	4627.33267
					Average	0.001911511	32.88074464	0.162065864	-	4709.84124
					SD	-	0.504917679	-	-	91.824284

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
300	2533631	253.3631	0.36610968	0.003979453	1795933	0.002820786	46.3466787	0.214224128	5.07868E-05	4218.10875
300	2533631	253.3631	0.36610968	0.003979453	1835173	0.002882418	43.88138304	0.205166913	5.18967E-05	3953.37009
300	2533631	253.3631	0.36610968	0.003979453	1767202	0.00277566	48.151735	0.220725886	4.99741E-05	4416.80596
					Average	0.002826288	46.12659891	0.213372309	-	4196.09493
					SD	-	2.143665737	-	-	232.500879

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
350	3167919	316.7919	0.4577643	0.004975699	2281951	0.003584151	55.66190261	0.24666061	6.45351E-05	3822.11531
350	3167919	316.7919	0.4577643	0.004975699	2219992	0.003486835	59.55454413	0.259435266	6.27823E-05	4132.29792
350	3167919	316.7919	0.4577643	0.004975699	2219296	0.003485742	59.59827109	0.259576306	6.27626E-05	4135.84147
					Average	0.00351891	58.27157261	0.255224061	-	4030.0849
					SD	-	2.260146266	-	-	180.11566

[Tolene]eq. (mol/l)	[Toluene] ads.(μmol/l)	SD
0.000511225	3.7252938	0.3864016
0.001032755	13.185834	0.06576851
0.001911511	32.880745	0.50491768
0.002826288	46.126599	2.14366574
0.00351891	58.271573	2.26014627

X admicelle	K
0.021440359	2333.367866
0.071980565	3871.762724
0.162065864	4709.84124
0.213372309	4196.094935
0.255224061	4030.084901

Table A-16 Adsolubilization isotherm of toluene in mixed-surfactant systems of CTAB and Triton X-305 at ratio 1:3

Weight of silica = 15 g
Molecular weight of toluene = 92 g/mole
Equation from GC Y = 0.0001X
Where X = Area of head space gas chomatography
Y = Equilibrium concentration of toluene
Density of toluene = 0.867 g/mL
Maximum adsorption of surfactant = 100 μmole/ g. of silica

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
50	384781	38.4781	0.05560085	0.000604357	377972	0.000593663	0.427782826	0.004259606	1.06865E-05	398.597526
50	384781	38.4781	0.05560085	0.000604357	369183	0.000579858	0.979961304	0.009704513	1.0438E-05	929.731012
50	384781	38.4781	0.05560085	0.000604357	381870	0.000599785	0.182886739	0.001825529	1.07967E-05	169.082109
					Average	0.000591102	0.53021029	0.005263216	-	499.136882
					SD	-	0.408289731	-	-	390.163825

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
100	867411	86.7411	0.12534089	0.001362401	834206	0.001310247	2.086140217	0.020435097	2.35872E-05	866.364674
100	867411	86.7411	0.12534089	0.001362401	839227	0.001318134	1.770690435	0.017398825	2.37292E-05	733.225405
100	867411	86.7411	0.12534089	0.001362401	819723	0.0012875	2.996050435	0.029088984	2.31776E-05	1255.04596
					Average	0.001305294	2.284293696	0.022307635	-	951.545348
					SD	-	0.636258896	-	-	271.138312

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
300	2533631	253.3631	0.36610968	0.003979453	2179840	0.00342377	22.22730413	0.1818522	6.16465E-05	2949.92096
300	2533631	253.3631	0.36610968	0.003979453	2219197	0.003485587	19.75465783	0.164959411	6.27598E-05	2628.42332
300	2533631	253.3631	0.36610968	0.003979453	2159197	0.003391347	23.52422304	0.190442186	6.10625E-05	3118.80749
					Average	0.003433568	21.835395	0.179084599	-	2899.05059
					SD	-	1.915097924	-	-	249.118452

Toluene(μl)	Area at initial	Toluene (μl)	Toluene(g/l)	Toluene (mol/l)	Area at eq.	[Tolene]eq. (mol/l)	[Toluene]ads. (μmole/g. of silica)	X admicelle	X bulk	K
350	3167919	316.7919	0.4577643	0.004975699	2715586	0.004265241	28.41831239	0.221294859	7.68032E-05	2881.3233
350	3167919	316.7919	0.4577643	0.004975699	2700996	0.004242325	29.334945	0.226813759	7.63904E-05	2969.1392
350	3167919	316.7919	0.4577643	0.004975699	2738161	0.004300699	27.00001348	0.212598509	7.74419E-05	2745.26392
					Average	0.004269422	28.25109029	0.220235709	-	2865.24214
					SD	-	1.176413501	-	-	112.800654

[Tolene]eq. (mol/l)	[Toluene] ads.(μmol/l)	SD
0.000591102	0.5302103	0.40828973
0.001305294	2.2842937	0.6362589
0.002437843	11.827472	0.96661847
0.003433568	21.835395	1.91509792
0.004269422	28.25109	1.1764135

K	X admicelle
499.1368825	0.01713629
951.5453475	0.054553855
2410.062558	0.107459871
2899.05059	0.160871493
2865.242139	0.203374915

Table A-17 Adsolubilization isotherm of acetophenone in CTAB

Weight of silica = 15 g
Molecular weight of acetophenone=120 g/mole
Equation from calibration curve Y = 0.0104X
Where X = Absorbance
Y = Equilibrium concentration of acetophenone (g/l)
Density of toluene = 1.027g/mL
Maximum adsorption of surfactant = 680 μmole/ g. of silica

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
100	0.1711667	0.0014264	0.1428000	0.0012376	0.0001888	7.4256963	0.0098039	0.0000223	440.0391050
100	0.1711667	0.0014264	0.1510000	0.0013087	0.0001177	4.6304074	0.0061360	0.0000236	260.4517263
100	0.1711667	0.0014264	0.1492000	0.0012931	0.0001333	5.2440074	0.0069435	0.0000233	298.2820633
			Average	0.0012798	-	5.7667037	0.0076278	-	332.9242982
			SD	-	-	1.4691217	-	-	94.6729633

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
500	0.8558333	0.0071319	0.7568000	0.0065589	0.0005730	22.5384370	0.0291745	0.0001181	246.9543320
500	0.8558333	0.0071319	0.7568000	0.0065589	0.0005730	22.5384370	0.0291745	0.0001181	246.9543320
500	0.8558333	0.0071319	0.7920000	0.0068640	0.0002679	10.5391481	0.0138575	0.0001236	112.0829976
			Average	0.0066606	-	18.53867407	0.024068836	-	201.9972206
			SD	-	-	6.92779267	-	-	77.86800125

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1000	1.7116667	0.0142639	0.7161000	0.0124124	0.0018515	72.8252296	0.0885063	0.0002237	395.6520708
1000	1.7116667	0.0142639	0.7095000	0.0122980	0.0019659	77.3249630	0.0934638	0.0002216	421.7052011
1000	1.7116667	0.0142639	0.7419000	0.0128596	0.0014043	55.2353630	0.0685953	0.0002318	295.9665680
			Average	0.0125233	-	68.46185185	0.083521817	-	371.1079467
			SD	-	-	11.67334169	-	-	66.36536364

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1500	2.5675000	0.0213958	0.5247000	0.0181896	0.0032062	126.1118444	0.1439449	0.0003280	438.8539654
1500	2.5675000	0.0213958	0.5419000	0.0187859	0.0026100	102.6586889	0.1203983	0.0003388	355.3943277
1500	2.5675000	0.0213958	0.5340000	0.0185120	0.0028838	113.4307778	0.1313722	0.0003338	393.5347103
			Average	0.0185	-	114.0671037	0.131905142	-	395.9276678
			SD	-	-	11.73951913	-	-	41.78124541

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
2000	3.4233333	0.0285278	0.4775000	0.0248300	0.0036978	145.4459259	0.1624285	0.0004480	362.5325365
2000	3.4233333	0.0285278	0.4744000	0.0246688	0.0038590	151.7864593	0.1781978	0.0004451	400.3342219
2000	3.4233333	0.0285278	0.4851000	0.0252252	0.0033026	129.9013926	0.1565263	0.0004552	343.8723218
			Average	0.0249080	-	142.3779259	0.1657175	-	368.9130267
			SD	-	-	11.2604842	-	-	28.7666392

[Acetophenone]eq. (mol/l)	[Acetophenone] ads.(µmol/l)	SD
0.001279778	5.766703704	1.4691217
0.006660622	18.53867407	6.92779267
0.012523333	68.46185185	11.6733417
0.018495822	114.0671037	11.7395191
0.024908	142.3779259	11.2604842

X admicelle	K
0.007627772	332.9242982
0.024068836	201.9972206
0.083521817	371.1079467
0.131905142	395.9276678
0.165717522	368.9130267

Table A-18 Adsolubilization isotherm of acetophenone in Triton X-165

Weight of silica = 15 g
Molecular weight of acetophenone=120 g/mole
Equation from calibration curve Y = 0.0078X
Where X = Absorbance
Y = Equilibrium concentration of acetophenone (g/l)
Density of toluene = 1.027g/mL
Maximum adsorption of surfactant =150 μmole/ g. of silica

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
100	0.1711667	0.0014264	0.2149000	0.0013969	0.0000295	1.1618630	0.0076862	0.0000251	305.6542901
100	0.1711667	0.0014264	0.2108000	0.0013702	0.0000562	2.2100963	0.0145200	0.0000247	588.6437153
100	0.1711667	0.0014264	0.1916000	0.0012454	0.0001810	7.1188963	0.0453090	0.0000224	2020.9216479
			Average	0.0013375	-	3.4969519	0.0225051	-	971.7398844
			SD	-	-	3.1801823	-	-	919.5692107

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
500	0.8558333	0.0071319	0.9624000	0.0062556	0.0008763	34.4695481	0.1868577	0.0001127	1658.4451645
500	0.8558333	0.0071319	0.9623000	0.0062550	0.0008770	34.4951148	0.1869703	0.0001127	1659.6178228
500	0.8558333	0.0071319	0.9790000	0.0063635	0.0007684	30.2254815	0.1677093	0.0001146	1463.2399042
			Average	0.0062914	-	33.06338148	0.18051242	-	1593.76763
			SD	-	-	2.457726738	-	-	113.0418474

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1000	1.7116667	0.0142639	0.9127000	0.0118651	0.0023988	94.3523630	0.3861324	0.0002138	1805.8566529
1000	1.7116667	0.0142639	0.9379000	0.0121927	0.0020712	81.4667630	0.3519588	0.0002197	1601.7558121
1000	1.7116667	0.0142639	0.9256000	0.0120328	0.0022311	87.7561630	0.3691015	0.0002168	1702.1208185
			Average	0.0120302	-	87.85842963	0.369064239	-	1703.244428
			SD	-	-	6.443408701	-	-	102.0550595

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1500	2.5675000	0.0213958	0.6491000	0.0168766	0.0045192	177.7565111	0.5423432	0.0003043	1782.3479037
1500	2.5675000	0.0213958	0.6559000	0.0170534	0.0043424	170.8023778	0.5324224	0.0003075	1731.5738093
1500	2.5675000	0.0213958	0.6345000	0.0164970	0.0048988	192.6874444	0.5622834	0.0002974	1890.4700454
			Average	0.0168	-	180.4154444	0.545682986	-	1801.463919
			SD	-	-	11.1821948	-	-	81.15460558

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
2000	3.4233333	0.0285278	0.5611000	0.0218829	0.0066449	261.3651926	0.6353605	0.0003947	1609.5464161
2000	3.4233333	0.0285278	0.5432000	0.0211848	0.0073430	288.8237926	0.6581771	0.0003821	1722.4102514
2000	3.4233333	0.0285278	0.5539000	0.0216021	0.0069257	272.4099926	0.6448948	0.0003897	1654.9814022
			Average	0.0215566	-	274.1996593	0.6461441	-	1662.3126899
			SD	-	-	13.8165067	-	-	56.7879579

[Acetophenone]eq. (mol/l)	[Acetophenone] ads.(µmol/l)	SD
0.001337483	3.496951852	3.1801823
0.00629135	33.06338148	2.45772674
0.0120302	87.85842963	6.4434087
0.016809	180.4154444	11.1821948
0.0215566	274.1996593	13.8165067

X admicelle	K
0.022505077	971.7398844
0.18051242	1593.76763
0.369064239	1703.244428
0.545682986	1801.463919
0.646144136	1662.31269

Table A-19 Adsolubilization isotherm of acetophenone in Triton X-305

Weight of silica = 15 g
Molecular weight of acetophenone=120 g/mole
Equation from calibration curve Y = 0.0096X
Where X = Absorbance
Y = Equilibrium concentration of acetophenone (g/l)
Density of toluene = 1.027g/mL
Maximum adsorption of surfactant =75 μmole/ g. of silica

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
100	0.1711667	0.0014264	0.1765000	0.0014120	0.0000144	0.5659630	0.0074897	0.0000254	294.6415835
100	0.1711667	0.0014264	0.1755000	0.0014040	0.0000224	0.8806296	0.0116055	0.0000253	459.1584162
100	0.1711667	0.0014264	0.1770000	0.0014160	0.0000104	0.4086296	0.0054189	0.0000255	212.5750680
			Average	0.0014107	-	0.6184074	0.0081713	-	322.1250226
			SD	-	-	0.2403306	-	-	125.5680751

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
500	0.8558333	0.0071319	0.8765000	0.0070120	0.0001199	4.7178148	0.0591814	0.0001263	468.5655156
500	0.8558333	0.0071319	0.8893000	0.0071144	0.0000175	0.6900815	0.0091172	0.0001281	71.1451753
500	0.8558333	0.0071319	0.8722000	0.0069776	0.0001543	6.0708815	0.0748836	0.0001257	595.8116522
			Average	0.0070347	-	3.826259259	0.04772742	-	378.5074477
			SD	-	-	2.799000829	-	-	273.6815114

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1000	1.7116667	0.0142639	0.8697000	0.0139152	0.0003487	13.7150963	0.1545971	0.0002508	616.3711477
1000	1.7116667	0.0142639	0.8514000	0.0136224	0.0006415	25.2318963	0.2517352	0.0002455	1025.2583349
1000	1.7116667	0.0142639	0.8646000	0.0138336	0.0004303	16.9246963	0.1841148	0.0002493	738.3926948
			Average	0.0137904	-	18.6238963	0.196815695	-	793.3407258
			SD	-	-	5.943452788	-	-	209.9086648

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1500	2.5675000	0.0213958	0.6201000	0.0198432	0.0015526	61.0702444	0.4488141	0.0003579	1254.0954620
1500	2.5675000	0.0213958	0.6062000	0.0193984	0.0019974	78.5657111	0.5116097	0.0003498	1462.4054680
1500	2.5675000	0.0213958	0.6276000	0.0200832	0.0013126	51.6302444	0.4077244	0.0003622	1125.6394990
			Average	0.0198	-	63.7554	0.456049419	-	1280.713476
			SD	-	-	13.6670182	-	-	169.9535774

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
2000	3.4233333	0.0285278	0.6544000	0.0255216	0.0030062	118.2429926	0.6118876	0.0004605	1328.6039679
2000	3.4233333	0.0285278	0.6455000	0.0251745	0.0033533	131.8955926	0.6374983	0.0004543	1403.3464349
2000	3.4233333	0.0285278	0.6456000	0.0251784	0.0033494	131.7421926	0.6372293	0.0004543	1402.5365184
			Average	0.0252915	-	127.2935926	0.6288718	-	1378.1623070
			SD	-	-	7.8384248	-	-	42.9206912

[Acetophenone]eq. (mol/l)	[Acetophenone] ads.(µmol/l)	SD
0.0014107	0.6184074	0.2403306
0.0070347	3.8262593	2.7990008
0.0137904	18.6238963	5.9434528
0.0197749	63.7554000	13.6670182
0.0252915	127.2935926	7.8384248

X admicelle	K
0.008171329	322.1250226
0.04772742	378.5074477
0.196815695	793.3407258
0.456049419	1280.713476
0.628871759	1378.162307

Table A-20 Adsolubilization isotherm of acetophenone in mixed-surfactant systems of CTAB and Triton X-165 at ratio 3:1

Weight of silica = 15 g
Molecular weight of acetophenone=120 g/mole
Equation from calibration curve Y = 0.0088X
Where X = Absorbance
Y = Equilibrium concentration of acetophenone (g/l)
Density of toluene = 1.027g/mL
Maximum adsorption of surfactant = 380 µmole/ g. of silica

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
100	0.1711667	0.0014264	0.1272000	0.0009328	0.0004936	19.4144963	0.0486074	0.0000168	2894.6846814
100	0.1711667	0.0014264	0.1266000	0.0009284	0.0004980	19.5875630	0.0490195	0.0000167	2933.0603286
100	0.1711667	0.0014264	0.1504000	0.0011029	0.0003235	12.7225852	0.0323959	0.0000199	1631.6252864
			Average	0.0009880	-	17.2415481	0.0433409	-	2486.4567655
			SD	-	-	3.9144933	-	-	740.5543976

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
500	0.8558333	0.0071319	0.7677000	0.0056298	0.0015021	59.0843481	0.1345626	0.0001014	1327.1424955
500	0.8558333	0.0071319	0.6927000	0.0050798	0.0020521	80.7176815	0.1751999	0.0000915	1915.1236123
500	0.8558333	0.0071319	0.7344000	0.0053856	0.0017463	68.6895481	0.1530893	0.0000970	1578.3638258
			Average	0.0053651	-	69.49719259	0.154283923	-	1606.876645
			SD	-	-	10.83925712	-	-	295.0257345

Acetophenone (ul)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
1000	1.7116667	0.0142639	0.6768000	0.0099264	0.0043375	170.6078963	0.3098537	0.0001789	1732.4734079
1000	1.7116667	0.0142639	0.6734000	0.0098765	0.0043874	172.5693185	0.3123035	0.0001780	1754.9957944
1000	1.7116667	0.0142639	0.7058000	0.0103517	0.0039122	153.8781185	0.2882271	0.0001865	1545.2724827
			Average	0.0100516	-	165.6851111	0.303461412	-	1677.580562
			SD	-	-	10.27207865	-	-	115.1342056

Acetophenone (ul)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
1500	2.5675000	0.0213958	0.5204000	0.0152651	0.0061308	241.1434889	0.3882251	0.0002752	1410.7736998
1500	2.5675000	0.0213958	0.5213000	0.0152915	0.0061044	240.1050889	0.3872006	0.0002757	1404.6180678
1500	2.5675000	0.0213958	0.5422000	0.0159045	0.0054913	215.9911333	0.3624066	0.0002867	1263.9217558
			Average	0.0155	-	232.413237	0.379277453	-	1359.771174
			SD	-	-	14.23143303	-	-	83.06507235

Acetophenone (ul)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
2000	3.4233333	0.0285278	0.4926000	0.0216744	0.0068534	269.5661926	0.4149942	0.0003910	1061.4317134
2000	3.4233333	0.0285278	0.4851000	0.0213444	0.0071834	282.5461926	0.4264551	0.0003850	1107.6451696
2000	3.4233333	0.0285278	0.4773000	0.0210012	0.0075266	296.0453926	0.4379076	0.0003788	1156.0174699
			Average	0.0213400	-	282.7192593	0.4264523	-	1108.3647843
			SD	-	-	13.2404483	-	-	47.2969842

[Acetophenone]eq. (mol/l)	[Acetophenone] ads.(μmol/l)	SD
0.000988044	17.24154815	3.91449329
0.005365067	69.49719259	10.8392571
0.010051556	165.6851111	10.2720787
0.015487022	232.413237	14.231433
0.02134	282.7192593	13.2404483

X admicelle	K
0.0433409	2486.456765
0.154283923	1606.876645
0.303461412	1677.580562
0.379277453	1359.771174
0.426452279	1108.364784

Table A-21 Adsolubilization isotherm of acetophenone in mixed-surfactant systems of CTAB and Triton X-165 at ratio 1:1

Weight of silica = 15 g
Molecular weight of acetophenone=120 g/mole
Equation from calibration curve Y = 0.0088X
Where X = Absorbance
Y = Equilibrium concentration of acetophenone (g/l)
Density of toluene = 1.027g/mL
Maximum adsorption of surfactant = 320 μmole/ g. of silica

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
100	0.1711667	0.0014264	0.1430000	0.0010487	0.0003777	14.8570741	0.0443684	0.0000189	2350.2760457
100	0.1711667	0.0014264	0.1455000	0.0010670	0.0003594	14.1359630	0.0423060	0.0000192	2202.5181662
100	0.1711667	0.0014264	0.1519000	0.0011139	0.0003125	12.2899185	0.0369855	0.0000201	1844.3883348
			Average	0.0010765	-	13.7609852	0.0412200	-	2132.3941822
			SD	-	-	1.3240197	-	-	260.1319355

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
500	0.8558333	0.0071319	0.7159000	0.0052499	0.0018820	74.0257704	0.1878704	0.0000945	1987.0410872
500	0.8558333	0.0071319	0.7189000	0.0052719	0.0018600	73.1604370	0.1860829	0.0000949	1959.9182434
500	0.8558333	0.0071319	0.7842000	0.0057508	0.0013811	54.3250148	0.1451279	0.0001036	1401.2111283
			Average	0.0054242	-	67.17040741	0.173027072	-	1782.723486
			SD	-	-	11.13284706	-	-	330.6775947

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1000	1.7116667	0.0142639	0.7026000	0.0103048	0.0039591	155.7241630	0.3273413	0.0001857	1762.9769832
1000	1.7116667	0.0142639	0.7123000	0.0104471	0.0038168	150.1283407	0.3193348	0.0001882	1696.4114483
1000	1.7116667	0.0142639	0.7268000	0.0106597	0.0036042	141.7634519	0.3070045	0.0001921	1598.3377740
			Average	0.0104705	-	149.2053185	0.317893528	-	1685.908735
			SD	-	-	7.025976174	-	-	82.82057437

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1500	2.5675000	0.0213958	0.5278000	0.0154821	0.0059137	232.6055333	0.4209251	0.0002791	1508.1243243
1500	2.5675000	0.0213958	0.5438000	0.0159515	0.0054444	214.1450889	0.4009118	0.0002876	1394.0913691
1500	2.5675000	0.0213958	0.5243000	0.0153795	0.0060164	236.6437556	0.4251260	0.0002773	1533.3594596
			Average	0.0156	-	227.7981259	0.415654322	-	1478.525051
			SD	-	-	11.99503543	-	-	74.20234494

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
2000	3.4233333	0.0285278	0.4767000	0.0209748	0.0075530	297.0837926	0.4814319	0.0003783	1272.5187329
2000	3.4233333	0.0285278	0.4768000	0.0209792	0.0075486	296.9107259	0.4812864	0.0003784	1271.8668460
2000	3.4233333	0.0285278	0.5044000	0.0221936	0.0063342	249.1443259	0.4377525	0.0004004	1093.3914092
			Average	0.0213825	-	281.0462815	0.4668236	-	1212.5923294
			SD	-	-	27.6280395	-	-	103.2315396

[Acetophenone]eq. (mol/l)	[Acetophenone] ads.(µmol/l)	SD
0.001076533	13.76098519	1.32402
0.005424222	67.17040741	11.13285
0.010470533	149.2053185	7.025976
0.015604356	227.7981259	11.99504
0.021382533	281.0462815	27.62804

X admicelle	K
0.041219985	2132.394182
0.173027072	1782.723486
0.317893528	1685.908735
0.415654322	1478.525051
0.46682356	1212.592329

Table A-22 Adsolubilization isotherm of acetophenone in mixed-surfactant systems of CTAB and Triton X-165 at ratio 1:3

Weight of silica = 15 g
Molecular weight of acetophenone=120 g/mole
Equation from calibration curve Y = 0.0098X
Where X = Absorbance
Y = Equilibrium concentration of acetophenone (g/l)
Density of toluene = 1.027g/mL
Maximum adsorption of surfactant = 210 μmole/ g. of silica

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
100	0.1711667	0.0014264	0.1499000	0.0012242	0.0002022	7.9534185	0.0364914	0.0000220	1655.8412179
100	0.1711667	0.0014264	0.1500000	0.0012250	0.0002014	7.9212963	0.0363493	0.0000221	1648.2969748
100	0.1711667	0.0014264	0.1542000	0.0012593	0.0001671	6.5721630	0.0303463	0.0000227	1338.5974116
			Average	0.0012362	-	7.4822926	0.0343957	-	1547.5785348
			SD	-	-	0.7883590	-	-	181.0222674

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
500	0.8558333	0.0071319	0.7655000	0.0062516	0.0008804	34.6275370	0.1415521	0.0001126	1257.1456249
500	0.8558333	0.0071319	0.7748000	0.0063275	0.0008044	31.6401704	0.1309392	0.0001140	1148.9240833
500	0.8558333	0.0071319	0.7884000	0.0064386	0.0006933	27.2715481	0.1149381	0.0001160	991.1149171
			Average	0.0063392	-	31.17975185	0.129143137	-	1132.394875
			SD	-	-	3.699544843	-	-	133.7833899

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1000	1.7116667	0.0142639	0.7679000	0.0125424	0.0017215	67.7132074	0.2438242	0.0002260	1078.6653340
1000	1.7116667	0.0142639	0.7540000	0.0123153	0.0019486	76.6431852	0.2673819	0.0002219	1204.7165118
1000	1.7116667	0.0142639	0.7565000	0.0123562	0.0019077	75.0370741	0.2632537	0.0002227	1182.1923350
			Average	0.0124046	-	73.13115556	0.25815327	-	1155.191394
			SD	-	-	4.760306695	-	-	67.22360436

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1500	2.5675000	0.0213958	0.5529000	0.0180614	0.0033344	131.1543778	0.3844429	0.0003257	1180.4097519
1500	2.5675000	0.0213958	0.5547000	0.0181202	0.0032756	128.8415778	0.3802413	0.0003267	1163.7137972
1500	2.5675000	0.0213958	0.5495000	0.0179503	0.0034455	135.5230000	0.3922257	0.0003237	1211.7712797
			Average	0.0180	-	131.8396519	0.385636648	-	1185.298276
			SD	-	-	3.393015052	-	-	24.39884543

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
2000	3.4233333	0.0285278	0.4756000	0.0233044	0.0052234	205.4528593	0.4945275	0.0004204	1176.1957235
2000	3.4233333	0.0285278	0.4689000	0.0229761	0.0055517	218.3659926	0.5097650	0.0004145	1229.8011638
2000	3.4233333	0.0285278	0.4609000	0.0225841	0.0059437	233.7846593	0.5267975	0.0004074	1293.0013438
			Average	0.0229549	-	219.2011704	0.5103633	-	1232.9994104
			SD	-	-	14.1843528	-	-	58.4684515

[Acetophenone]eq. (mol/l)	[Acetophenone] ads.(µmol/l)	SD
0.001236161	7.482292593	0.788359
0.006339239	31.17975185	3.699545
0.012404622	73.13115556	4.760307
0.018043978	131.8396519	3.393015
0.022954867	219.2011704	14.18435

X admicelle	K
0.03439567	1547.578535
0.129143137	1132.394875
0.25815327	1155.191394
0.385636648	1185.298276
0.510363339	1232.99941

Table A-23 Adsolubilization isotherm of acetophenone in mixed-surfactant systems of CTAB and Triton X-305 at ratio 3:1

Weight of silica = 15 g
Molecular weight of acetophenone=120 g/mole
Equation from calibration curve Y = 0.009X
Where X = Absorbance
Y = Equilibrium concentration of acetophenone (g/l)
Density of toluene = 1.027g/mL
Maximum adsorption of surfactant = 290 μmole/ g. of silica

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
100	0.1711667	0.0014264	0.1491000	0.0011183	0.0003081	12.1201296	0.0401169	0.0000201	1992.8207606
100	0.1711667	0.0014264	0.1431000	0.0010733	0.0003531	13.8901296	0.0457077	0.0000193	2365.7577981
100	0.1711667	0.0014264	0.1484000	0.0011130	0.0003134	12.3266296	0.0407726	0.0000200	2034.9444053
				0.0011015	-	12.7789630	0.0421991	-	2131.1743214
				-	-	0.9678218	-	-	204.2441090

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g silica)	Xadmicelle	Xbulk	K
500	0.8558333	0.0071319	0.7407000	0.0055553	0.0015767	62.0166481	0.1761753	0.0001000	1760.8838367
500	0.8558333	0.0071319	0.7458000	0.0055935	0.0015384	60.5121481	0.1726392	0.0001007	1713.7341101
500	0.8558333	0.0071319	0.7679000	0.0057593	0.0013727	53.9926481	0.1569587	0.0001037	1513.2128238
				0.0056360	-	58.84048148	0.168591095	-	1662.610257
				-	-	4.265207625	-	-	131.5122387

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1000	1.7116667	0.0142639	0.7300000	0.0109500	0.0033139	130.3462963	0.3100926	0.0001973	1571.5748563
1000	1.7116667	0.0142639	0.7543000	0.0113145	0.0029494	116.0092963	0.2857306	0.0002039	1401.4045472
1000	1.7116667	0.0142639	0.7152000	0.0107280	0.0035359	139.0782963	0.3241327	0.0001933	1676.7615230
				0.0109975	-	128.477963	0.306651988	-	1549.913642
				-	-	11.64743286	-	-	138.9506106

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g silica)	Xadmicelle	Xbulk	K
1500	2.5675000	0.0213958	0.5421000	0.0162630	0.0051328	201.8914444	0.4104390	0.0002932	1399.8373754
1500	2.5675000	0.0213958	0.5312000	0.0159360	0.0054598	214.7534444	0.4254621	0.0002873	1480.8980800
1500	2.5675000	0.0213958	0.5428000	0.0162840	0.0051118	201.0654444	0.4094473	0.0002936	1394.6514047
				0.0162	-	205.9034444	0.415116147	-	1425.128953
				-	-	7.675444222	-	-	48.36703616

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g silica)	Xadmicelle	Xbulk	K
2000	3.4233333	0.0285278	0.4912000	0.0221040	0.0064238	252.6685926	0.4656039	0.0003987	1167.6814308
2000	3.4233333	0.0285278	0.4752000	0.0213840	0.0071438	280.9885926	0.4921089	0.0003857	1275.7980149
2000	3.4233333	0.0285278	0.4656000	0.0209520	0.0075758	297.9805926	0.5067864	0.0003779	1340.9965960
				0.0214800	-	277.2125926	0.4881664	-	1261.4920139
				-	-	22.8907835	-	-	87.5387506

[Acetophenone]eq. (mol/l)	[Acetophenone] ads.(µmol/l)	SD
0.0011015	12.77896296	0.96782182
0.005636	58.84048148	4.26520762
0.0109975	128.477963	11.6474329
0.016161	205.9034444	7.67544422
0.02148	277.2125926	22.8907835

X admicelle	K
0.042199071	2131.174321
0.168591095	1662.610257
0.306651988	1549.913642
0.415116147	1425.128953
0.488166416	1261.492014

Table A-24 Adsolubilization isotherm of acetophenone in mixed-surfactant systems of CTAB and Triton X-305 at ratio 1:1

Weight of silica = 15 g
Molecular weight of acetophenone=120 g/mole
Equation from calibration curve Y = 0.0097X
Where X = Absorbance
Y = Equilibrium concentration of acetophenone (g/l)
Density of toluene = 1.027g/mL
Maximum adsorption of surfactant = 170 μmole/ g. of silica

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g of silica)	Xadmicelle	Xbulk	K
100	0.1711667	0.0014264	0.1522000	0.0012303	0.0001961	7.7134852	0.0434041	0.0000221	1959.7463488
100	0.1711667	0.0014264	0.1556000	0.0012578	0.0001686	6.6324741	0.0375496	0.0000226	1658.3587569
100	0.1711667	0.0014264	0.1519000	0.0012279	0.0001985	7.8088685	0.0439172	0.0000221	1986.8325802
			Average	0.0012386	-	7.3849426	0.0416236	-	1868.3125620
			SD	-	-	0.6533997	-	-	182.3290053

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
500	0.8558333	0.0071319	0.7798000	0.0063034	0.0008286	32.5900704	0.1608671	0.0001135	1416.9370445
500	0.8558333	0.0071319	0.7689000	0.0062153	0.0009167	36.0556648	0.1749802	0.0001119	1563.1098910
500	0.8558333	0.0071319	0.7739000	0.0062557	0.0008763	34.4659426	0.1685657	0.0001127	1496.0738209
			Average	0.0062581	-	34.37055926	0.168137658	-	1492.040252
			SD	-	-	1.734765027	-	-	73.16985392

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1000	1.7116667	0.0142639	0.7556000	0.0122155	0.0020484	80.5686519	0.3215432	0.0002201	1460.5967220
1000	1.7116667	0.0142639	0.7423000	0.0120005	0.0022634	89.0259741	0.3436952	0.0002163	1589.2276015
1000	1.7116667	0.0142639	0.7578000	0.0122511	0.0020128	79.1696963	0.3177340	0.0002208	1439.0985605
			Average	0.0121557	-	82.92144074	0.327657478	-	1496.307628
			SD	-	-	5.332753939	-	-	81.18579831

Acetophenone (ul)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1500	2.5675000	0.0213958	0.5509000	0.0178124	0.0035834	140.9470667	0.4532832	0.0003212	1411.2676190
1500	2.5675000	0.0213958	0.5499000	0.0177801	0.0036157	142.2188444	0.4555101	0.0003206	1420.7847087
1500	2.5675000	0.0213958	0.5535000	0.0178965	0.0034993	137.6404444	0.4474069	0.0003227	1386.4173083
			Average	0.0178	-	140.2687852	0.452066711	-	1406.156545
			SD	-	-	2.363363274	-	-	17.74462899

Acetophenone (ul)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
2000	3.4233333	0.0285278	0.4705000	0.0228193	0.0057085	224.5354259	0.5691135	0.0004117	1382.4372717
2000	3.4233333	0.0285278	0.4693000	0.0227611	0.0057667	226.8246259	0.5715992	0.0004106	1392.0336404
2000	3.4233333	0.0285278	0.4758000	0.0230763	0.0054515	214.4247926	0.5577809	0.0004163	1339.7825631
			Average	0.0228855	-	221.9282815	0.5661645	-	1371.4178251
			SD	-	-	6.5982474	-	-	27.8139340

[Acetophenone]eq. (mol/l)	[Acetophenone] ads.(µmol/l)	SD
0.001238636	7.384942593	0.6533997
0.006258117	34.37055926	1.734765
0.012155717	82.92144074	5.3327539
0.017829678	140.2687852	2.3633633
0.022885533	221.9282815	6.5982474

X admicelle	K
0.04162361	1868.312562
0.168137658	1492.040252
0.327657478	1496.307628
0.452066711	1406.156545
0.566164501	1371.417825

Table A-25 Adsolubilization isotherm of acetophenone in mixed-surfactant systems of CTAB and Triton X-305 at ratio 1:3

Weight of silica = 15 g
Molecular weight of acetophenone=120 g/mole
Equation from calibration curve Y = 0.0102X
Where X = Absorbance
Y = Equilibrium concentration of acetophenone (g/l)
Density of toluene = 1.027g/mL
Maximum adsorption of surfactant = 100 μmole/ g. of silica

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
100	0.1711667	0.0014264	0.1402000	0.0011917	0.0002347	9.2310963	0.0845098	0.0000215	3939.2762995
100	0.1711667	0.0014264	0.1439000	0.0012232	0.0002032	7.9940630	0.0740232	0.0000220	3361.7313884
100	0.1711667	0.0014264	0.1418000	0.0012053	0.0002211	8.6961630	0.0800043	0.0000217	3687.1780514
			Average	0.0012067	-	8.6404407	0.0795124	-	3662.7285797
			SD	-	-	0.6203963	-	-	289.5476879

Acetophenone (μl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (μmol/g. of silica)	Xadmicelle	Xbulk	K
500	0.8558333	0.0071319	0.7447000	0.0063300	0.0008020	31.5451148	0.2398045	0.0001140	2103.3575246
500	0.8558333	0.0071319	0.7507000	0.0063810	0.0007510	29.5391148	0.2280324	0.0001149	1984.1066514
500	0.8558333	0.0071319	0.7587000	0.0064490	0.0006830	26.8644481	0.2117571	0.0001162	1823.0553916
			Average	0.0063866	-	29.31622593	0.226531345	-	1970.173189
			SD	-	-	2.348280159	-	-	140.6695684

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1000	1.7116667	0.0142639	0.7316000	0.0124372	0.0018267	71.8497630	0.4180964	0.0002241	1865.2955844
1000	1.7116667	0.0142639	0.7344000	0.0124848	0.0017791	69.9774963	0.4116868	0.0002250	1829.6887464
1000	1.7116667	0.0142639	0.7197000	0.0122349	0.0020290	79.8068963	0.4438478	0.0002205	2012.9649625
			Average	0.0123856	-	73.87805185	0.42454367	-	1902.649764
			SD	-	-	5.219170715	-	-	97.18047087

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
1500	2.5675000	0.0213958	0.5322000	0.0180948	0.0033010	129.8406444	0.5649159	0.0003263	1731.3344337
1500	2.5675000	0.0213958	0.5505000	0.0187170	0.0026788	105.3674444	0.5130679	0.0003375	1520.0672502
1500	2.5675000	0.0213958	0.5338000	0.0181492	0.0032466	127.7009111	0.5608274	0.0003273	1713.6429017
			Average	0.0183	-	120.9696667	0.546270418	-	1655.014862
			SD	-	-	13.55421036	-	-	117.2023506

Acetophenone (µl)	[Ace] initial (g/l)	[Ace] initial (mol/l)	A	[Ace] eq (mol/l)	[Ace] ad (mol/l)	[Ace] ad (µmol/g. of silica)	Xadmicelle	Xbulk	K
2000	3.4233333	0.0285278	0.4553000	0.0232203	0.0053075	208.7607926	0.6761247	0.0004189	1613.9484627
2000	3.4233333	0.0285278	0.4484000	0.0228684	0.0056594	222.6021926	0.6900207	0.0004126	1672.5232562
2000	3.4233333	0.0285278	0.4523000	0.0230673	0.0054605	214.7787926	0.6823166	0.0004162	1639.5567065
			Average	0.0230520	-	215.3805926	0.6828207	-	1642.0094751
			SD	-	-	6.9402962	-	-	29.3643264

[Acetophenone]eq. (mol/l)	[Acetophenone] ads.(µmol/l)	SD
0.001206717	8.640440741	0.6203963
0.006386617	29.31622593	2.3482802
0.012385633	73.87805185	5.2191707
0.018320333	120.9696667	13.55421
0.023052	215.3805926	6.9402962

X admicelle	K
0.079512426	3662.72858
0.226531345	1970.173189
0.42454367	1902.649764
0.546270418	1655.014862
0.682820659	1642.009475

CURRICURUM VITAE

Name: Ms. Passaporn Kessadayurat

Date of Birth: Jan 28, 1980

Nationality: Thai

University Education:

1998-2002 Bachelor Degree of Chemical Engineering in Chemical Technology (2^{nd} class honors), Faculty of Science, Chulalongkorn University, Bangkok, Thailand.