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APPENDICES

Table A-1 Adsorption isotherm of CTAB at the pH 5

No.	Initial (ppm Carbon)	Equilibrium		Adsorbed		weight. of silica (g)	Adsorpted / wt. of silica (μmol CTAB / g)
		ppm Carbon	mM CTAB	ppm Carbon	mM CTAB		
1	82.33	12.93	56.71	69.40	304.39	0.50	12.13
2	660.4	20.87	91.54	639.53	2804.96	0.50	111.93
3	183.6	16.9	74.12	166.70	731.14	0.50	29.12
4	239.2	14.77	64.78	224.43	984.34	0.50	39.34
5	379.8	19.64	86.14	360.16	1579.65	0.50	62.96
6	602.2	22.52	98.77	579.68	2542.46	0.50	101.64
7	475.1	36.25	158.99	438.85	1924.78	0.50	76.47
8	601.1	27.62	121.14	573.48	2515.26	0.50	100.53
9	670.6	26.41	115.83	644.19	2825.39	0.51	111.85
10	724.2	25.94	113.77	698.26	3062.54	0.50	121.77
11	804	26.59	116.62	777.41	3409.69	0.50	136.39
12	879.6	19	83.33	860.60	3774.56	0.50	150.29
13	941.6	33.45	146.71	908.15	3983.11	0.50	159.01
14	1021.4	33.38	146.40	988.02	4333.42	0.50	172.41
15	1154	34.7	152.19	1119.30	4909.21	0.50	195.82
16	1459.8	89.38	392.02	1370.42	6010.61	0.50	240.42
17	1687.2	62.82	275.53	1624.38	7124.47	0.50	283.22
18	1839	61.22	268.51	1777.78	7797.28	0.50	310.03
19	7140	3818	16745.61	3322.00	14570.18	0.50	577.49
20	4770	1974.6	8660.53	2795.40	12260.53	0.50	487.21
21	12186	9398	41219.30	2788.00	12228.07	0.50	487.17
22	5980	3106	13622.81	2874.00	12605.26	0.50	501.00
23	4136	1263	5539.47	2873.00	12600.88	0.50	500.93
24	3128	348.8	1529.82	2779.20	12189.47	0.50	486.61
25	2426	133.0255	583.45	2292.97	10056.91	0.50	401.55

No.	Initial (ppm Carbon)	Equilibrium		Adsorbed		Wt. of silica (g)	Adsorbed/ wt. of silica (μmol CTAB / g)
		ppm Carbon	mM CTAB	ppm Carbon	mM CTAB		
26	2176	75.25	330.04	2100.75	9213.82	0.50	365.70
27	1823.4	65.15306	285.76	1758.25	7711.61	0.50	305.65
28	1588	48.44	212.46	1539.56	6752.46	0.50	269.51
29	1234	39.43981	172.98	1194.56	5239.30	0.50	208.20
30	1071	32.74	143.60	1038.26	4553.77	0.50	180.81
31	923.6	28.74	126.05	894.86	3924.82	0.50	155.53
32	778.8	26.76	117.37	752.04	3298.42	0.50	131.02
33	618.3	25.9	113.60	592.40	2598.25	0.51	102.60
34	624.3	23.86	104.65	600.44	2633.51	0.50	104.63
35	394.9	24.05	105.48	370.85	1626.54	0.50	64.82

Table A-2 Adsorption isotherm of CTAB at the pH 8

No.	Initial (ppm Carbon)	Equilibrium		Adsorbed		Wt. of silica (g)	Adsorbed/ wt. of silica (mmol CTAB / g)
		ppm Carbon	mM CTAB	ppm Carbon	mM CTAB		
1	415.90	20.29	88.99	395.61	1735.13	0.50	69.03
2	809.50	18.28	80.17	791.22	3470.27	0.50	138.40
3	1134.00	18.62	81.66	1115.38	4892.03	0.50	195.06
4	1816.00	33.74	147.98	1782.26	7816.93	0.50	310.32
5	2303.00	44.20	193.86	2258.80	9907.02	0.51	391.43
6	2663.00	71.02	311.49	2591.98	11368.33	0.50	452.56
7	2744.00	82.61	362.32	2661.39	11672.76	0.50	463.66
8	3387.00	218.76	959.47	3168.24	13895.79	0.50	552.08
9	4239.00	808.00	3543.86	3431.00	15048.25	0.50	598.34
10	2144.00	38.41	168.46	2105.59	9235.04	0.50	366.47
11	421.20	45.01	197.41	376.19	1649.96	0.51	65.31
12	304.00	19.49	85.48	284.51	1247.85	0.51	48.87
13	14.74	14.47	63.46	0.27	1.18	0.50	0.05
14	21.60	16.23	71.18	5.37	23.55	0.51	0.93
15	29.37	14.00	61.40	15.37	67.41	0.50	2.68
16	29.19	17.03	74.69	12.16	53.33	0.50	2.14
17	27.29	17.46	76.58	9.83	43.11	0.51	1.71
18	30.37	12.38	54.30	17.99	78.90	0.51	3.11
19	56.32	11.19	49.08	45.13	197.94	0.51	7.79
20	88.12	12.28	53.86	75.84	332.63	0.50	13.21
21	150.00	13.14	57.63	136.86	600.26	0.50	23.83
22	239.70	14.32	62.81	225.38	988.51	0.51	38.97
23	25.76	13.78	60.44	11.98	52.54	0.50	2.10
24	1060.00	19.63	86.10	1040.37	4563.02	0.50	181.87
25	2133.00	48.67	213.46	2084.33	9141.80	0.50	362.63
26	2244.00	41.79	183.29	2202.21	9658.82	0.51	379.60

No.	Initial (ppm Carbon)	[CTAB] equilibrium		Adsorbed		Wt. of silica (g)	Adsorbed/ wt. of silica (mmol CTAB / g)
		ppm Carbon	mM CTAB	ppm Carbon	mM CTAB		
27	1859.00	30.09	131.97	1828.91	8021.54	0.51	316.56
28	2259.00	46.25	202.85	2212.75	9705.04	0.51	382.39
29	2157.00	41.87	183.65	2115.13	9276.87	0.50	368.35
30	837.30	18.62	81.66	818.68	3590.71	0.50	142.72
31	1613.00	26.00	114.02	1587.00	6960.54	0.50	277.31
32	1824.00	33.42	146.58	1790.58	7853.42	0.51	310.53
33	1708.00	27.92	122.46	1680.08	7368.77	0.50	293.11
34	682.20	17.66	77.45	664.54	2914.66	0.51	115.36
35	560.40	29.94	131.32	530.46	2326.58	0.50	92.62
36	7471.00	4082.63	17906.28	3388.37	14861.26	0.50	590.20
37	7286.00	3978.62	17450.08	3307.38	14506.06	0.51	572.80
38	4128.14	670.80	2942.13	3457.33	15163.75	0.51	598.41
39	5350.00	2012.25	8825.65	3337.75	14639.27	0.51	579.43
40	6121.00	2766.36	12133.17	3354.64	14713.32	0.50	584.79
41	39.29	19.53	85.66	19.76	86.67	0.50	3.45
42	25.22	14.64	64.21	10.58	46.40	0.50	1.85
43	16.85	12.71	55.75	4.14	18.16	0.50	0.72
44	16.89	14.31	62.76	2.58	11.32	0.51	0.45

Table A-3 Adsolubilization of toluene pH = 5

Weight of silica = 15 g

Molecular weight of Toluene= 92

Equation Y= 1.00E-07 X

Where X = Area of Head space gas chromatography

Y= Equilibrium concentration of toluene

ρ= 0.867 g/ml

Max adsorption = 500 μmol/g silica

Toluene (ml)	[Toluene] (g/l)	[Toluene] (mol/l)	Area EQ	[Toluene]EQ (g/l)	[Toluene]EQ (mol/l)	[Toluene]EQ (mmol/l)	[Toluene] adsolubilization (μmol /g of silica)	Xo	K(1/mM)
10	1.45E-02	1.57E-04	46202	4.62E-03	5.02E-05	5.02E-02	7.12E+00	1.40E-02	2.80E-01
50	7.23E-02	7.85E-04	281341	2.81E-02	3.06E-04	3.06E-01	3.20E+01	6.01E-02	1.97E-01
100	1.45E-01	1.57E-03	521419	5.21E-02	5.67E-04	5.67E-01	6.69E+01	1.18E-01	2.08E-01
200	2.89E-01	3.14E-03	983111	9.83E-02	1.07E-03	1.07E+00	1.38E+02	2.17E-01	2.03E-01
300	4.34E-01	4.71E-03	1447972	1.45E-01	1.57E-03	1.57E+00	2.09E+02	2.95E-01	1.87E-01
350	5.06E-01	5.50E-03	1698720	1.70E-01	1.85E-03	1.85E+00	2.43E+02	3.27E-01	1.77E-01

Table A-4 Adsolubilization of toluene pH = 8

Weight of silica = 15 g

Molecular weight of Toluene= 92

Equation Y= 1.00E-07 X

Where X = Area of Head space gas chromatography

Y= Equilibrium concentration of toluene

ρ= 0.867 g/ml

Max adsorption = 600 µmol/g silica

Toluene (ml)	[Toluene] (g/l)	[Toluene] (mol/l)	Area EQ	[Toluene]EQ g/l	[Toluene]EQ mol/l	[Toluene]EQ mmol/l	[Toluene] adsolubilization µmol /g of silica	Xo	K(1/mM)
10	1.45E-02	1.57E-04	39085	3.91E-03	4.25E-05	4.25E-02	7.64E+00	1.26E-02	2.96E-01
50	7.23E-02	7.85E-04	228972	2.29E-02	2.49E-04	2.49E-01	3.58E+01	5.63E-02	2.26E-01
100	1.45E-01	1.57E-03	438749	4.39E-02	4.77E-04	4.77E-01	7.29E+01	1.08E-01	2.27E-01
200	2.89E-01	3.14E-03	824125	8.24E-02	8.96E-04	8.96E-01	1.50E+02	2.00E-01	2.23E-01
300	4.34E-01	4.71E-03	1187952	1.19E-01	1.29E-03	1.29E+00	2.28E+02	2.75E-01	2.13E-01
350	5.06E-01	5.50E-03	1365834	1.37E-01	1.48E-03	1.48E+00	2.68E+02	3.08E-01	2.08E-01

Table A-5 Adsolubilization of acetophenone at pH=5

weight of silica = 15 g

Molecular Weight of Acetophenone 120

Equation Y = 95.22X+0.0751

where X= Equilibrium concentration of acetophenone

Y= Percentage of absorbance

ρ (acetophenone) 1.028 g/ml

Max adsorption= 500 μmol/g silica

Acetophenone (ml)	[Acetophenone] (g/l)	[Acetophenone] (M)	%A	[Acetophenone] Eq conc(M)	[Acetophenone] Eq conc(mM)	[Acetophenone] Adsolubilization (mmol /g of silica)	Xo	K (1/mM)
50	8.57E-02	7.14E-04	6	5.19E-04	5.19E-01	1.30E+01	2.54E-02	4.90E-02
100	1.71E-01	1.43E-03	12	1.04E-03	1.04E+00	2.56E+01	4.87E-02	4.67E-02
250	4.28E-01	3.57E-03	33	2.88E-03	2.88E+00	4.59E+01	8.40E-02	2.92E-02
500	8.57E-01	7.14E-03	71	6.21E-03	6.21E+00	6.21E+01	1.11E-01	1.78E-02
700	1.20E+00	9.99E-03	99	8.66E-03	8.66E+00	8.91E+01	1.51E-01	1.75E-02
1000	1.71E+00	1.43E-02	140	1.22E-02	1.22E+01	1.35E+02	2.13E-01	1.74E-02
1500	2.57E+00	2.14E-02	210	1.84E-02	1.84E+01	2.03E+02	2.89E-01	1.57E-02

Table A-6 Adsolubilization of acetophenone at pH=8

weight of silica = 15 g

Molecular Weight of Acetophenone 120

Equation Y = 95.22X+0.0751

where X= Equilibrium concentration of acetophenone

Y= Percentage of absorbance

ρ (acetophenone) 1.028 g/ml

Max adsorption= 600 μmol/g silica

Acetophenone (ml)	[Acetophenone] (g/l)	[Acetophenone] (M)	%A	[Acetophenone] Eq conc(M)	[Acetophenone] Eq conc(mM)	[Acetophenone] Adsolubilization (μmol /g of silica)	Xo	K (1/mM)
50	8.57E-02	7.14E-04	5	4.31E-04	4.31E-01	1.89E+01	3.05E-02	7.07E-02
100	1.71E-01	1.43E-03	9.9	8.60E-04	8.60E-01	3.79E+01	5.94E-02	6.90E-02
250	4.28E-01	3.57E-03	25	2.18E-03	2.18E+00	9.25E+01	1.34E-01	6.13E-02
500	8.57E-01	7.14E-03	55	4.81E-03	4.81E+00	1.55E+02	2.06E-01	4.28E-02
700	1.20E+00	9.99E-03	80	6.99E-03	6.99E+00	2.00E+02	2.50E-01	3.57E-02
1000	1.71E+00	1.43E-02	115	1.01E-02	1.01E+01	2.81E+02	3.19E-01	3.17E-02
1500	2.57E+00	2.14E-02	170	1.49E-02	1.49E+01	4.36E+02	4.21E-01	2.83E-02

Table A-7 Adsolubilization of toluene with 0.714 mmol/l of acetophenone at pH = 5

weight of silica = 15 g

Molecular wt of toluene= 92

Molecular wt of acetophenone= 120

ρ (toluene)= 0.87 g/ml

Max adsorption= 500 μmol/g silica

Equation Y= 1.00E-07 X Acetophenone= 0.000714 mol/l

Toluene (ml)	[Toluene] (g/l)	Area EQ	[Toluene] EQ (g/l)	[Toluene]EQ (mmol/l)	[Toluene] adsolubilization (μmol /g of silica)	%A	[Acetophenone] EQ (mol/l)	[Acetophenone] adsolubilization (μmol /g of silica)	Xo	K(1/mM)
10	1.45E-02	35598	3.56E-03	3.87E-02	7.89E+00	1	8.09E-05	4.22E+01	1.43E-02	3.71E-01
50	7.23E-02	209245	2.09E-02	2.27E-01	3.72E+01	0.8	6.34E-05	4.34E+01	6.41E-02	2.82E-01
100	1.45E-01	495486	4.95E-02	5.39E-01	6.88E+01	2	1.68E-04	3.64E+01	1.14E-01	2.11E-01
200	2.89E-01	897231	8.97E-02	9.75E-01	1.44E+02	1	8.09E-05	4.22E+01	2.10E-01	2.16E-01
300	4.34E-01	1307495	1.31E-01	1.42E+00	2.19E+02	1	8.09E-05	4.22E+01	2.88E-01	2.03E-01
350	5.06E-01	1455432	1.46E-01	1.58E+00	2.61E+02	0.9	7.22E-05	4.28E+01	3.25E-01	2.05E-01

Table A-8 Adsolubilization of Toluene with 1.43 mmol/l of Acetophenone at pH = 5

wt of silica = 15 g

Molecular wt of toluene= 92

Molecular wt of acetophenone= 120

ρ (toluene)= 0.87 g/ml

Max adsorption= 500 μmol/g silica

Equation Y= 1.00E-07 X Acetophenone 0.00143 mol/l

Toluene (ml)	[Toluene] (g/l)	Area EQ	[Toluene] EQ g/l	[Toluene]EQ mmol/l	[Toluene] adsolubilization (μmol /g of silica)	%A	[Acetophenone] EQ (mol/l)	[Acetophenone] adsolubilization (μmol /g of silica)	Xo	K(1/mM)
10	1.45E-02	30769	3.08E-03	3.34E-02	8.24E+00	2	1.68E-04	8.41E+01	1.39E-02	4.16E-01
50	7.23E-02	195766	1.96E-02	2.13E-01	3.82E+01	3.8	3.26E-04	7.36E+01	6.24E-02	2.93E-01
100	1.45E-01	443795	4.44E-02	4.82E-01	7.26E+01	3.5	3.00E-04	7.54E+01	1.12E-01	2.32E-01
200	2.89E-01	808401	8.08E-02	8.79E-01	1.51E+02	2.5	2.12E-04	8.12E+01	2.06E-01	2.35E-01
300	4.34E-01	1193028	1.19E-01	1.30E+00	2.28E+02	3	2.56E-04	7.83E+01	2.82E-01	2.18E-01
350	5.06E-01	1287614	1.29E-01	1.40E+00	2.73E+02	2.8	2.38E-04	7.94E+01	3.20E-01	2.29E-01

Table A-9 Adsolubilization of toluene with 0.714 mmol/l of Acetophenone at pH = 8

weight of silica = 15 g

Molecular wt of toluene= 92

Molecular wt of acetopheno 120

ρ (acetophenone) = 1.2 g/ml

ρ (toluene) = 0.867 g/ml

Max adsorption= 600 μmol/g silica

Equation Y= 1.00E-07 X Acetophenone= 0.000714 mol/l

Toluene (ml)	[Toluene] (g/l)	Area EQ	[Toluene] EQ g/l	[Toluene] EQ mmol/l	[Toluene] adsolubilization (mmol /g of silica)	%A	[Acetophenone] EQ (mol/l)	[Acetophenone] adsolubilization (mmol /g of silica)	Xo	K (1/mM)
10	1.45E-02	32058	3.21E-03	3.48E-02	8.15E+00	0.7	5.47E-05	4.40E+01	1.25E-02	3.59E-01
50	7.23E-02	198535	1.99E-02	2.16E-01	3.80E+01	0.6	4.59E-05	4.45E+01	5.56E-02	2.58E-01
100	1.45E-01	392929	3.93E-02	4.27E-01	7.62E+01	0.5	3.72E-05	4.51E+01	1.06E-01	2.47E-01
200	2.89E-01	737834	7.38E-02	8.02E-01	1.56E+02	0.6	4.59E-05	4.45E+01	1.95E-01	2.43E-01
300	4.34E-01	1043123	1.04E-01	1.13E+00	2.39E+02	0.6	4.59E-05	4.45E+01	2.70E-01	2.38E-01
350	5.06E-01	1221432	1.22E-01	1.33E+00	2.78E+02	0.7	5.47E-05	4.40E+01	3.02E-01	2.27E-01
400	5.78E-01	1332485	1.33E-01	1.45E+00	3.22E+02	0.5	3.72E-05	4.51E+01	3.33E-01	2.30E-01

Table A-10 Adsolubilization of toluene with 1.43 mmol/l of Acetophenone at pH = 8

wt of silica = 15 g

Molecular wt of toluene= 92

Molecular wt of acetophenone= 120

ρ (toluene)= 0.87 g/ml

Max adsorption= 600 μmol/g silica

Equation Y= 1.00E-07 X Acetophenone= 0.00143 mol/l

Toluene (ml)	[Toluene] (g/l)	Area EQ	[Toluene] EQ g/l	[Toluene] EQ mmol/l	[Toluene] adsolubilization (mmol /g of silica)	%A	[Acetophenone] EQ (mol/l)	[Acetophenone] adsolubilization (mmol /g of silica)	Xo	K (1/mM)
10	1.45E-02	33743	3.37E-03	3.67E-02	8.03E+00	16	1.39E-03	2.42E+00	1.31E-02	3.58E-01
50	7.23E-02	177501	1.78E-02	1.93E-01	3.95E+01	9	7.81E-04	4.33E+01	5.78E-02	3.00E-01
100	1.45E-01	376033	3.76E-02	4.09E-01	7.75E+01	10	8.69E-04	3.74E+01	1.08E-01	2.65E-01
200	2.89E-01	671970	6.72E-02	7.30E-01	1.61E+02	7	6.06E-04	5.49E+01	1.97E-01	2.70E-01
300	4.34E-01	899262	8.99E-02	9.77E-01	2.49E+02	6.6	5.71E-04	5.73E+01	2.75E-01	2.81E-01
350	5.06E-01	1032561	1.03E-01	1.12E+00	2.92E+02	10	8.69E-04	3.74E+01	3.14E-01	2.80E-01
400	5.78E-01	1147892	1.15E-01	1.25E+00	3.36E+02	6.9	5.97E-04	5.55E+01	3.39E-01	2.71E-01

Table A-11 Adsolubilization of acetophenone with toluene 0.7853 mmol/l at pH= 5

wt of silica = 15 g

Molecular Weight of Toluene = 92

Molecular Weight of Acetopheno 120

ρ (acetophenone)= 1.028 g/ml

ρ (toluene)= 0.867 g/ml

Max adsorption= 500 µmol/g silica

initial of toluene= 0.0008 mol/l

Equation(acetophenone) Y = 95.22X+0.0751 Equation(Toluene) Y 1E-07 X

Acetophenone (µl)	initial (g/l)	initial (M)	%A	Eq conc (M)	Eq conc (mM)	[acetophenone] adsolubilization (µmol /g of silica)	Area	[Toluene] (g/l)	[Toluene] (M)	[Toluene] adsolubilization µmol /g of silica	Xo	K(1/mM)
50	8.57E-02	7.14E-04	5	4.31E-04	4.31E-01	1.89E+01	2.09E+05	2.09E-02	2.28E-04	5.58E-04	3.63E-02	8.43E-02
100	1.71E-01	1.43E-03	10	8.69E-04	8.69E-01	3.73E+01	2.36E+05	2.36E-02	2.56E-04	5.29E-04	6.94E-02	7.99E-02
250	4.28E-01	3.57E-03	30	2.62E-03	2.62E+00	6.34E+01	2.19E+05	2.19E-02	2.38E-04	5.47E-04	1.12E-01	4.29E-02
500	8.57E-01	7.14E-03	68	5.94E-03	5.94E+00	7.96E+01	2.60E+05	2.60E-02	2.83E-04	5.02E-04	1.37E-01	2.31E-02
700	1.20E+00	9.99E-03	95	8.31E-03	8.31E+00	1.12E+02	2.36E+05	2.36E-02	2.57E-04	5.28E-04	1.84E-01	2.21E-02
1000	1.71E+00	1.43E-02	131	1.15E-02	1.15E+01	1.88E+02	2.36E+05	2.36E-02	2.57E-04	5.28E-04	2.73E-01	2.38E-02
1500	2.57E+00	2.14E-02	200	1.75E-02	1.75E+01	2.61E+02	3.00E+05	3.00E-02	3.26E-04	4.60E-04	3.43E-01	1.96E-02

Table A-12 Adsolubilization of acetophenone with toluene 1.57 mmol/l at pH= 5

wt of silica = 15 g
Molecular Weight of Toluene = 92
Molecular Weight of Acetopheno 120
ρ (acetophenone)= 1.028 g/ml
ρ (toluene)= 0.867 g/ml
Max adsorption= 500 µmol/g silica
initial of toluene= 0.0016 mol/l

Equation(acetophenone) Y = 95.22X+0.0751 Equation(Toluene) Y = 1E-07 x

Acetophenone (µl)	initial (g/l)	initial (M)	%A	Eq conc (M)	Eq conc (mM)	[acetophenone] adsolubilization (µmol /g of silica)	Area	[Toluene] (g/l)	[Toluene] (M)	[Toluene] adsolubilization µmol /g of silica	Xo	K(1/mM)
50	8.57E-02	7.14E-04	4	3.43E-04	3.43E-01	2.47E+01	4.02E+05	4.02E-02	4.37E-04	1.13E-03	4.71E-02	1.37E-01
100	1.71E-01	1.43E-03	8.8	7.64E-04	7.64E-01	4.43E+01	3.92E+05	3.92E-02	4.26E-04	1.14E-03	8.14E-02	1.07E-01
250	4.28E-01	3.57E-03	22	1.92E-03	1.92E+00	1.10E+02	4.50E+05	4.50E-02	4.89E-04	1.08E-03	1.80E-01	9.40E-02
500	8.57E-01	7.14E-03	50	4.37E-03	4.37E+00	1.85E+02	4.31E+05	4.31E-02	4.69E-04	1.10E-03	2.70E-01	6.17E-02
700	1.20E+00	9.99E-03	75	6.56E-03	6.56E+00	2.29E+02	4.48E+05	4.48E-02	4.87E-04	1.08E-03	3.14E-01	4.79E-02
1000	1.71E+00	1.43E-02	100	8.75E-03	8.75E+00	3.69E+02	4.81E+05	4.81E-02	5.22E-04	1.05E-03	4.25E-01	4.85E-02
1500	2.57E+00	2.14E-02	150	1.31E-02	1.31E+01	5.53E+02	4.70E+05	4.70E-02	5.11E-04	1.06E-03	5.25E-01	4.00E-02

Table A-13 Adsolubilization of acetophenone with toluene 0.785 mmol/l at pH= 8

wt of silica = 15 g

Molecular Weight of Toluene = 92

Molecular Weight of Acetophenone = 120

ρ (acetophenone)= 1.028 g/ml

ρ (toluene)= 0.867 g/ml

Max adsorption= 600 µmol/g silica

initial of toluene= 8E-04 mol/l

Equation(acetophenone) Y = 95.22X+0.0751 Equation(Toluene) 1E-07 X

Acetophenone (µl)	initial (g/l)	initial (M)	%A	Eq conc (M)	Eq conc (mM)	[acetophenone] adsolubilization µmol /g of silica	Area	[Toluene]g/l	[Toluene] M	[toluene] adsolubilization µmol /g of silica	Xo	K
50	8.57E-02	7.14E-04	4	3.43E-04	3.43E-01	2.47E+01	209366	2.09E-02	2.28E-04	5.58E-04	3.95E-02	1.15E-01
100	1.71E-01	1.43E-03	8.8	7.64E-04	7.64E-01	4.43E+01	235766	2.36E-02	2.56E-04	5.29E-04	6.87E-02	9.00E-02
250	4.28E-01	3.57E-03	20	1.74E-03	1.74E+00	1.22E+02	219359	2.19E-02	2.38E-04	5.47E-04	1.69E-01	9.67E-02
500	8.57E-01	7.14E-03	42	3.67E-03	3.67E+00	2.31E+02	260459	2.60E-02	2.83E-04	5.02E-04	2.78E-01	7.58E-02
700	1.20E+00	9.99E-03	60	5.24E-03	5.24E+00	3.17E+02	236400	2.36E-02	2.57E-04	5.28E-04	3.45E-01	6.59E-02
1000	1.71E+00	1.43E-02	88	7.69E-03	7.69E+00	4.39E+02	236429	2.36E-02	2.57E-04	5.28E-04	4.22E-01	5.49E-02
1500	2.57E+00	2.14E-02	130	1.14E-02	1.14E+01	6.70E+02	299533	3.00E-02	3.26E-04	4.60E-04	5.27E-01	4.64E-02

Table A-14 Adsolubilization of acetophenone with toluene 1.571 mmol/l at pH= 8

weight of silica = 15 g

Molecular Weight of Toluene = 92

Molecular Weight of Acetophenone = 120

ρ (acetophenone)= 1.028 g/ml

ρ (toluene)= 0.867 g/ml

Max adsorption= 600 µmol/g silica

initial of tolue 0.00157 M

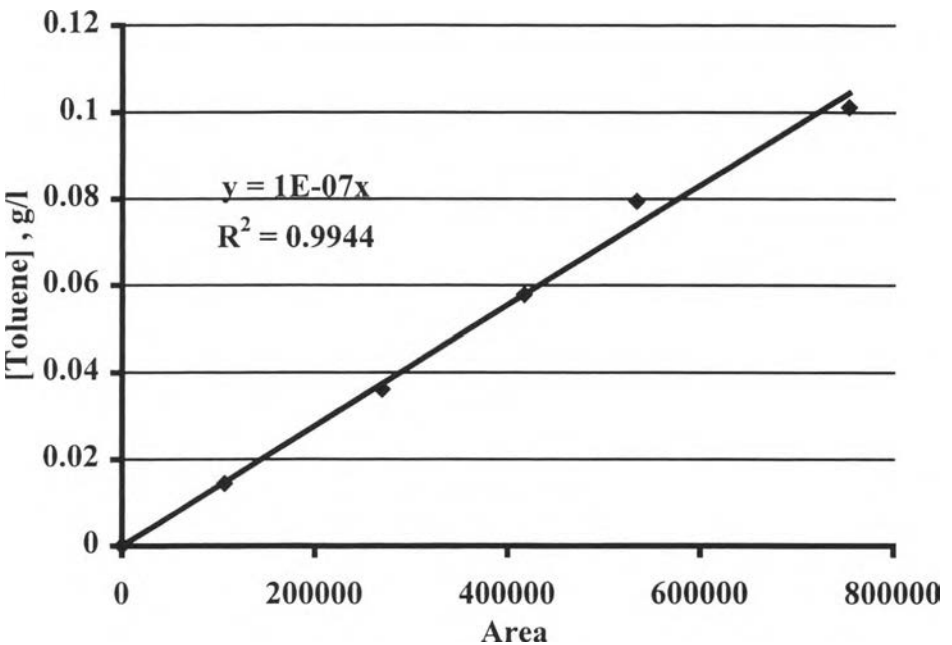
Equation(acetophenone) Y = 95.22X+0.0751 Equation(Toluene) 1E-07 x

Acetophenone (µl)	initial (g/l)	initial (M)	%A	Eq conc (M)	Eq conc (mM)	[acetophenone] adsolubilization µmol /g of silica	Area	[Toluene]g/l	[Toluene] M	[toluene] adsolubilization µmol /g of silica	Xo	K
50	8.57E-02	7.14E-04	3	2.56E-04	2.56E-01	3.05E+01	424148	4.24E-02	4.61E-04	1.11E-03	4.84E-02	1.89E-01
100	1.71E-01	1.43E-03	6.5	5.62E-04	5.62E-01	5.77E+01	392044	3.92E-02	4.26E-04	1.14E-03	8.77E-02	1.56E-01
250	4.28E-01	3.57E-03	15	1.31E-03	1.31E+00	1.51E+02	450185	4.50E-02	4.89E-04	1.08E-03	2.01E-01	1.54E-01
500	8.57E-01	7.14E-03	35	3.06E-03	3.06E+00	2.72E+02	479488	4.79E-02	5.21E-04	1.05E-03	3.12E-01	1.02E-01
700	1.20E+00	9.99E-03	50	4.37E-03	4.37E+00	3.75E+02	485869	4.86E-02	5.28E-04	1.04E-03	3.85E-01	8.80E-02
1000	1.71E+00	1.43E-02	70	6.12E-03	6.12E+00	5.44E+02	342502	3.43E-02	3.72E-04	1.20E-03	4.75E-01	7.77E-02
1500	2.57E+00	2.14E-02	100	8.75E-03	8.75E+00	8.45E+02	446542	4.47E-02	4.85E-04	1.09E-03	5.85E-01	6.69E-02

Table A-15 Calibration curve of toluene by Head-space gas chromatography

ρ (toluene)= 0.867 g/ml

Toluene (ml)	[Toluene] (g/l)	Area
0	0	0
10	0.01445	106206
25	0.036125	269721
40	0.0578	417128
55	0.079475	533961
70	0.10115	753318



Equation Y= 1.00E-07 X

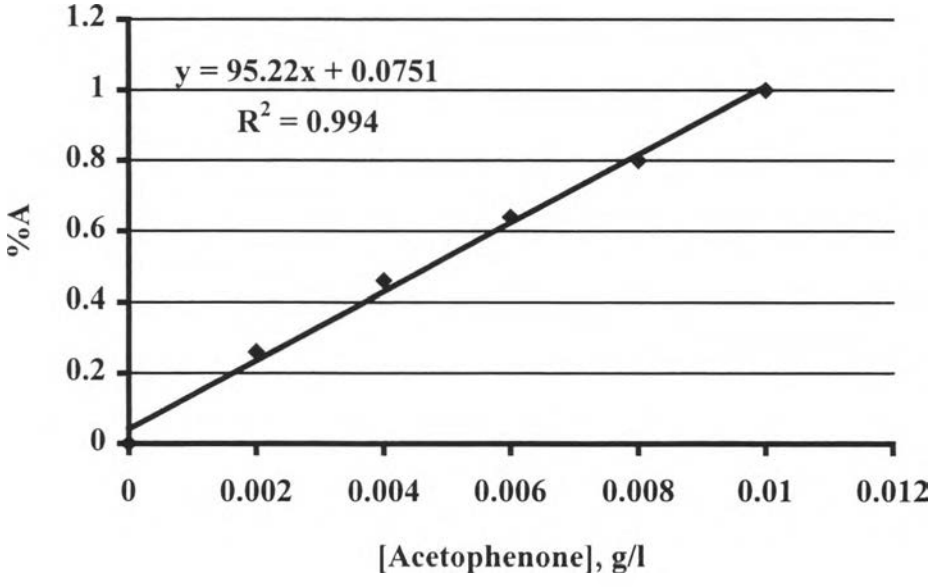
Where X = Area of Head space gas chromatography

Y= Equilibrium concentration of toluene

Table A-16 Calibration curve of acetophenone by UV-VIS spectophotometer

ρ (acetophenone)= 1.2 g/ml

Acetophenone (μl)	[Acetophenone] (g/l)	%A
0	0	0
1	0.002	0.26
2	0.004	0.46
3	0.006	0.64
4	0.008	0.8
5	0.01	1



Equation Y = 95.22X+0.0751

where X= Equilibrium concentration of acetophenone

Y= Percentage of absorbance

CURRICULUM VITAE

Name: Mr. Torsakul Pradubmook

Date of Birth: December 19, 1977

Nationality: Thai

University Education:

1996-1999 Bachelor Degree of Science in Chemical Engineering, Faculty of Science, Chulalongkorn University, Bangkok, Thailand