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## **APPENDICES**

**APPENDIX A**  
**Experimental Data from Precipitation Study**

**Table A** Precipitation phase behavior at different cationic surfactant concentration ratio

System	Cationic surfactant concentration (Y)										
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
SDS-DTAB	-	+	+	+	+	+	+	+	+	+	-
SDS-CTAB	-	-	+	+	+	+	+	+	+	+	-
SDS-DDAB	-	+	+	+	+	+	+	+	+	+	-
SDS-DTDACl	-	+	+	+	+	+	+	+	+	+	-
DTAB-AOT	-	+	+	+	+	+	+	+	+	+	-
DTAB-AMA	-	+	+	+	+	+	+	+	+	-	-
DTAB-AAy	-	+	+	+	+	+	+	+	+	-	-
DTAB-Dowfax8390	-	-	-	-	+	+	+	+	+	-	-

+ -- Precipitates or liquid crystals occurred

- -- Clear solution

## APPENDIX B

### Experimental Data from Phase Diagram and Solubilization Studies

**Table B-1a** Winsor type of microemulsion and phase volume at different cationic surfactant concentration ratio for microemulsion of SDS-DTAB in hexane.

Y	Concentration (M)		M <sub>S</sub> (g)	Winsor type	Phase height (mm)			Relative Volume			V <sub>O</sub> (ml)	SP <sub>O</sub> (ml/g)	V <sub>w</sub> (ml)	SP <sub>w</sub> (ml/g)
	DTAB	SDS			upper	middle	lower	upper	middle	lower				
0.0	0.000	0.050	0.1081	I	50.972	-	52.028	0.495	-	0.505	0.077	0.712	7.500	69.353
0.1	0.005	0.045	0.1089	I	50.595	-	52.405	0.491	-	0.509	0.132	1.210	7.500	68.876
0.2	0.010	0.040	0.1096	I	51.173	-	51.827	0.497	-	0.503	0.048	0.434	7.500	68.406
0.3	0.015	0.035	0.1104	I	51.071	-	51.929	0.496	-	0.504	0.063	0.567	7.500	67.941
0.4	0.020	0.030	0.1111	III	43.041	13.363	46.596	0.418	0.130	0.452	1.232	11.085	0.714	6.426
0.5	0.025	0.025	0.1119	I	49.953	-	53.047	0.485	-	0.515	0.225	2.013	7.500	67.032
0.6	0.030	0.020	0.1126	I	49.262	-	53.738	0.478	-	0.522	0.326	2.894	7.500	66.586
0.7	0.035	0.015	0.1134	I	49.969	-	53.031	0.485	-	0.515	0.223	1.967	7.500	66.147
0.8	0.040	0.010	0.1141	I	50.691	-	52.309	0.492	-	0.508	0.118	1.033	7.500	65.713
0.9	0.045	0.005	0.1149	I	50.887	-	52.113	0.494	-	0.506	0.089	0.778	7.500	65.284
1.0	0.050	0.000	0.1156	I	51.202	-	51.798	0.497	-	0.503	0.043	0.375	7.500	64.861

**Table B-1b** Winsor type of microemulsion and phase volume at different cationic surfactant concentration ratio for microemulsion of SDS-CTAB in hexane.

Y	Concentration (M)		M <sub>S</sub> (g)	Winsor type	Phase height (mm)			Relative Volume			V <sub>O</sub> (ml)	SP <sub>O</sub> (ml/g)	V <sub>w</sub> (ml)	SP <sub>w</sub> (ml/g)
	CTAB	SDS			upper	middle	lower	upper	middle	lower				
0.0	0.000	0.050	0.1081	I	51.344	-	51.656	0.498	-	0.502	0.023	0.210	7.500	69.353
0.1	0.005	0.045	0.1114	I	49.245	-	53.755	0.478	-	0.522	0.328	2.948	7.500	67.314
0.2	0.010	0.040	0.1147	III	47.220	24.493	31.287	0.458	0.238	0.304	0.623	5.435	2.944	25.665
0.3	0.015	0.035	0.1180	III	40.821	22.984	39.195	0.396	0.223	0.381	1.555	13.183	1.792	15.190
0.4	0.020	0.030	0.1212	I	50.140	-	52.860	0.487	-	0.513	0.198	1.634	7.500	61.858
0.5	0.025	0.025	0.1245	I	47.027	-	55.973	0.457	-	0.543	0.651	5.231	7.500	60.231
0.6	0.030	0.020	0.1278	I	48.395	-	54.605	0.470	-	0.530	0.452	3.538	7.500	58.687
0.7	0.035	0.015	0.1311	I	50.811	-	52.189	0.493	-	0.507	0.100	0.765	7.500	57.220
0.8	0.040	0.010	0.1343	I	50.641	-	52.359	0.492	-	0.508	0.125	0.931	7.500	55.825
0.9	0.045	0.005	0.1376	I	50.350	-	52.650	0.489	-	0.511	0.167	1.217	7.500	54.496
1.0	0.050	0.000	0.1409	I	50.499	-	52.501	0.490	-	0.510	0.146	1.035	7.500	53.229

**Table B-1c** Winsor type of microemulsion and phase volume at different cationic surfactant concentration ratio for microemulsion of SDS-DDAB in hexane.

Y	Concentration (M)		M <sub>S</sub> (g)	Winsor type	Phase height (mm)			Relative Volume			V <sub>O</sub> (ml)	SP <sub>O</sub> (ml/g)	V <sub>w</sub> (ml)	SP <sub>w</sub> (ml/g)
	DDAB	SDS			upper	middle	lower	upper	middle	lower				
0.0	0.000	0.050	0.1081	I	51.344	-	51.656	0.498	-	0.502	0.023	0.210	7.500	69.353
0.1	0.005	0.045	0.1150	I	51.156	-	51.844	0.497	-	0.503	2.550	22.168	7.500	65.199
0.2	0.010	0.040	0.1219	I	50.332	-	52.668	0.489	-	0.511	2.670	21.901	7.500	61.515
0.3	0.015	0.035	0.1288	I	48.324	-	54.676	0.469	-	0.531	2.963	23.000	7.500	58.225
0.4	0.020	0.030	0.1357	I	48.744	-	54.256	0.473	-	0.527	2.901	21.381	7.500	55.269
0.5	0.025	0.025	0.1426	I	49.248	-	53.752	0.478	-	0.522	2.828	19.833	7.500	52.599
0.6	0.030	0.020	0.1495	I	50.379	-	52.621	0.489	-	0.511	2.663	17.817	7.500	50.175
0.7	0.035	0.015	0.1564	I	50.365	-	52.635	0.489	-	0.511	2.665	17.045	7.500	47.964
0.8	0.040	0.010	0.1633	I	49.876	-	53.124	0.484	-	0.516	2.737	16.762	7.500	45.940
0.9	0.045	0.005	0.1701	I	49.976	-	53.024	0.485	-	0.515	2.722	15.998	7.500	44.080
1.0	0.050	0.000	0.1770	II	51.939	-	51.061	0.504	-	0.496	2.436	13.761	7.500	42.365



**Table B-1d** Winsor type of microemulsion and phase volume at different cationic surfactant concentration ratio for microemulsion of SDS-DTDACl in hexane.

Y	Concentration (M)		M <sub>S</sub> (g)	Winsor type	Phase height (mm)			Relative Volume			V <sub>O</sub> (ml)	SP <sub>O</sub> (ml/g)	V <sub>w</sub> (ml)	SP <sub>w</sub> (ml/g)
	DTDACl	SDS			upper	middle	lower	upper	middle	lower				
0.0	0.000	0.050	0.1081	I	51.344	-	51.656	0.498	-	0.502	0.023	0.210	7.500	69.353
0.1	0.005	0.045	0.1194	I	44.234	-	51.900	0.460	-	0.540	0.558	4.675	7.000	58.619
0.2	0.010	0.040	0.1379	II	48.136	-	47.997	0.501	-	0.499	7.000	50.763	0.010	0.073
0.3	0.015	0.035	0.1564	II	68.187	-	27.946	0.709	-	0.291	7.000	44.763	2.930	18.738
0.4	0.020	0.030	0.1749	I	33.974	-	62.159	0.353	-	0.647	2.052	11.737	7.000	40.032
0.5	0.025	0.025	0.1933	II	49.571	-	46.562	0.516	-	0.484	7.000	36.205	0.219	1.133
0.6	0.030	0.020	0.2118	II	48.998	-	47.135	0.510	-	0.490	7.000	33.046	0.136	0.640
0.7	0.035	0.015	0.2303	II	49.554	-	46.580	0.515	-	0.485	7.000	30.394	0.217	0.940
0.8	0.040	0.010	0.2488	II	51.080	-	45.054	0.531	-	0.469	7.000	28.137	0.439	1.764
0.9	0.045	0.005	0.2673	III	39.842	11.600	44.691	0.414	0.121	0.465	3.198	11.965	0.492	1.839
1.0	0.050	0.000	0.2858	III	41.573	10.329	44.231	0.432	0.107	0.460	2.946	10.309	0.559	1.955

**Table B-2a** Winsor type of microemulsion and phase volume at different cationic surfactant concentration ratio for microemulsion of DTAB-AOT in hexane.

Y	Concentration (M)		M <sub>S</sub> (g)	Winsor type	Phase height (mm)			Relative Volume			V <sub>O</sub> (ml)	SP <sub>O</sub> (ml/g)	V <sub>w</sub> (ml)	SP <sub>w</sub> (ml/g)
	DTAB	AOT			upper	middle	lower	upper	middle	lower				
0.0	0.000	0.050	0.1554	II	49.717	-	46.417	0.517	-	0.483	7.000	45.045	0.240	1.546
0.1	0.005	0.045	0.1507	II	48.549	-	47.584	0.505	-	0.495	7.000	46.465	0.070	0.467
0.2	0.010	0.040	0.1459	II	48.022	-	48.112	0.500	-	0.500	7.000	47.977	0.007	0.045
0.3	0.015	0.035	0.1412	II	48.389	-	47.744	0.503	-	0.497	7.000	49.590	0.047	0.333
0.4	0.020	0.030	0.1364	I	47.759	-	48.374	0.497	-	0.503	0.045	0.329	7.000	51.316
0.5	0.025	0.025	0.1317	I	47.421	-	48.712	0.493	-	0.507	0.094	0.714	7.000	53.167
0.6	0.030	0.020	0.1269	II	48.375	-	47.758	0.503	-	0.497	7.000	55.156	0.045	0.354
0.7	0.035	0.015	0.1222	II	53.757	-	42.377	0.559	-	0.441	7.000	57.299	0.829	6.783
0.8	0.040	0.010	0.1174	I	46.171	-	49.962	0.480	-	0.520	0.276	2.351	7.000	59.616
0.9	0.045	0.005	0.1127	I	46.846	-	49.287	0.487	-	0.513	0.178	1.578	7.000	62.128
1.0	0.050	0.000	0.1156	I	51.202	-	51.798	0.497	-	0.503	0.043	0.375	7.500	64.861

**Table B-2b** Winsor type of microemulsion and phase volume at different cationic surfactant concentration ratio for microemulsion of DTAB-AMA in hexane.

Y	Concentration (M)		M <sub>S</sub> (g)	Winsor type	Phase height (mm)			Relative Volume			V <sub>O</sub> (ml)	SP <sub>O</sub> (ml/g)	V <sub>w</sub> (ml)	SP <sub>w</sub> (ml/g)
	DTAB	AMA			upper	middle	lower	upper	middle	lower				
0.0	0.000	0.050	0.1821	I	48.911	-	54.089	0.475	-	0.525	0.377	2.071	7.500	41.188
0.1	0.005	0.045	0.1754	I	51.037		51.963	0.496	-	0.504	0.067	0.384	7.500	42.749
0.2	0.010	0.040	0.1688	III	47.994	33.333	21.673	0.466	0.3236	0.210	4.344	25.733	0.511	3.025
0.3	0.015	0.035	0.1622	II	52.006	-	50.994	0.505	-	0.495	7.500	46.253	0.074	0.454
0.4	0.020	0.030	0.1555	II	51.859	-	51.141	0.503	-	0.497	7.500	48.229	0.052	0.336
0.5	0.025	0.025	0.1489	II	51.580	-	51.420	0.501	-	0.499	7.500	50.383	0.012	0.078
0.6	0.030	0.020	0.1422	I	50.694		52.306	0.492	-	0.508	0.117	0.826	7.500	52.737
0.7	0.035	0.015	0.1356	I	47.621	-	55.379	0.462	-	0.538	0.565	4.167	7.500	55.322
0.8	0.040	0.010	0.1289	I	48.845	-	54.155	0.474	-	0.526	0.387	2.999	7.500	58.174
0.9	0.045	0.005	0.1223	I	51.358	-	51.642	0.499	-	0.501	0.021	0.169	7.500	61.336
1.0	0.050	0.000	0.1156	I	49.728	-	53.272	0.483	-	0.517	0.258	2.232	7.500	64.861

**Table B-2c** Winsor type of microemulsion and phase volume at different cationic surfactant concentration ratio for microemulsion of DTAB-AAY in hexane.

Y	Concentration (M)		M <sub>s</sub> (g)	Winsor type	Phase height (mm)			Relative Volume			V <sub>o</sub> (ml)	SP <sub>o</sub> (ml/g)	V <sub>w</sub> (ml)	SP <sub>w</sub> (ml/g)
	DTAB	AAY			upper	middle	lower	upper	middle	lower				
0.0	0.000	0.050	0.1350	I	48.337	-	54.663	0.469	-	0.531	0.461	3.412	7.500	55.556
0.1	0.005	0.045	0.1331	I	50.422	-	52.578	0.490	-	0.510	0.157	1.179	7.500	56.364
0.2	0.010	0.040	0.1311	III	47.636	15.505	39.859	0.462	0.1505	0.387	0.563	4.291	1.695	12.929
0.3	0.015	0.035	0.1292	II	52.602	-	50.398	0.511	-	0.489	7.500	58.054	0.160	1.242
0.4	0.020	0.030	0.1273	I	46.617	-	56.383	0.453	-	0.547	0.711	5.588	7.500	58.938
0.5	0.025	0.025	0.1253	I	49.953	-	53.047	0.485	-	0.515	0.225	1.797	7.500	59.849
0.6	0.030	0.020	0.1234	III	33.518	24.145	45.337	0.325	0.4688	0.206	2.619	21.225	0.898	7.274
0.7	0.035	0.015	0.1214	I	50.109	-	52.891	0.486	-	0.514	0.203	1.668	7.500	61.758
0.8	0.040	0.010	0.1195	I	50.765	-	52.235	0.493	-	0.507	0.107	0.896	7.500	62.759
0.9	0.045	0.005	0.1176	I	49.174	-	53.826	0.477	-	0.523	0.339	2.881	7.500	63.793
1.0	0.050	0.000	0.1156	I	50.964	-	52.036	0.495	-	0.505	0.078	0.676	7.500	64.861

**Table B-2d** Winsor type of microemulsion and phase volume at different cationic surfactant concentration ratio for microemulsion of DTAB-Dowfax8390 in hexane.

Y	Concentration (M)		M <sub>S</sub> (g)	Winsor type	Phase height (mm)			Relative Volume			V <sub>O</sub> (ml)	SP <sub>O</sub> (ml/g)	V <sub>w</sub> (ml)	SP <sub>w</sub> (ml/g)
	DTAB	Dowfax 8390			upper	middle	lower	upper	middle	lower				
0.0	0.000	0.050	0.6688	I	51.224	-	51.776	0.497	-	0.503	0.040	0.060	7.500	11.215
0.1	0.005	0.045	0.6134	I	51.216	-	51.784	0.497	-	0.503	0.041	0.067	7.500	12.226
0.2	0.010	0.040	0.5581	I	50.911	-	52.089	0.494	-	0.506	0.086	0.154	7.500	13.438
0.3	0.015	0.035	0.5028	I	50.950	-	52.050	0.495	-	0.505	0.080	0.159	7.500	14.916
0.4	0.020	0.030	0.4475	I	51.194	-	51.806	0.497	-	0.503	0.045	0.099	7.500	16.760
0.5	0.025	0.025	0.3922	I	51.450	-	51.550	0.500	-	0.500	0.007	0.019	7.500	19.123
0.6	0.030	0.020	0.3369	I	49.577	-	53.423	0.481	-	0.519	0.280	0.831	7.500	22.263
0.7	0.035	0.015	0.2816	III	48.732	14.918	39.350	0.473	-	0.527	1.769	6.284	0.403	1.432
0.8	0.040	0.010	0.2263	I	50.424	-	52.576	0.490	-	0.510	0.157	0.692	7.500	33.148
0.9	0.045	0.005	0.1709	I	51.010	-	51.990	0.495	-	0.505	0.071	0.417	7.500	43.874
1.0	0.050	0.000	0.1156	I	50.964	-	52.036	0.495	-	0.505	0.078	0.676	7.500	64.861

**Table B-3a** Winsor type of microemulsion and phase volume at different cationic surfactant concentration ratio for microemulsion of DTAB-AAV in hexadecane.

Y	Concentration (M)		M <sub>S</sub> (g)	Winsor type	Phase height (mm)			Relative Volume			V <sub>O</sub> (ml)	SP <sub>O</sub> (ml/g)	V <sub>w</sub> (ml)	SP <sub>w</sub> (ml/g)
	DTAB	AAV			upper	middle	lower	upper	middle	lower				
0.0	0.000	0.050	0.1350	I	33.002	-	35.665	0.481	-	0.519	5.000	37.037	0.194	1.437
0.1	0.005	0.045	0.1331	I	33.945	-	34.721	0.494	-	0.506	5.000	37.576	0.056	0.425
0.2	0.010	0.040	0.1311	I	34.264	-	34.402	0.499	-	0.501	5.000	38.131	0.010	0.077
0.3	0.015	0.035	0.1292	I	34.128	-	34.539	0.497	-	0.503	5.000	38.703	0.030	0.231
0.4	0.020	0.030	0.1273	I	34.042	-	34.625	0.496	-	0.504	5.000	39.292	0.042	0.333
0.5	0.025	0.025	0.1253	III	35.688	3.1526	32.979	0.520	0.0459	0.434	0.656	5.238	0.262	2.089
0.6	0.030	0.020	0.1234	II	36.446	-	32.221	0.531	-	0.469	0.308	2.493	5.000	40.526
0.7	0.035	0.015	0.1214	II	36.429	-	32.238	0.531	-	0.469	0.305	2.513	5.000	41.172
0.8	0.040	0.010	0.1195	II	37.722	-	30.945	0.549	-	0.451	0.494	4.130	5.000	41.839
0.9	0.045	0.005	0.1176	II	37.577	-	31.089	0.547	-	0.453	0.472	4.018	5.000	42.529
1.0	0.050	0.000	0.1156	I	50.964	-	52.036	0.495	-	0.505	0.078	0.676	7.500	64.861

**Table B-3b** Winsor type of microemulsion and phase volume at different cationic surfactant concentration ratio for microemulsion of DTAB-AAY in TCE.

Y	Concentration (M)		M <sub>S</sub> (g)	Winsor type	Phase height (mm)			Relative Volume			V <sub>O</sub> (ml)	SP <sub>O</sub> (ml/g)	V <sub>w</sub> (ml)	SP <sub>w</sub> (ml/g)
	DTAB	AA Y			upper	middle	lower	upper	middle	lower				
0.0	0.000	0.050	0.1350	I	34.213	-	34.454	0.498	-	0.502	0.018	0.130	5.000	37.037
0.1	0.005	0.045	0.1331	I	33.920	-	34.747	0.494	-	0.506	0.060	0.453	5.000	37.576
0.2	0.010	0.040	0.1311	I	33.569	-	35.098	0.489	-	0.511	0.111	0.849	5.000	38.131
0.3	0.015	0.035	0.1292	I	33.917	-	34.750	0.494	-	0.506	0.061	0.469	5.000	38.703
0.4	0.020	0.030	0.1273	I	34.098	-	34.569	0.497	-	0.503	0.034	0.270	5.000	39.292
0.5	0.025	0.025	0.1253	I	33.970	-	34.696	0.495	-	0.505	0.053	0.422	5.000	39.899
0.6	0.030	0.020	0.1234	I	33.742	-	34.924	0.491	-	0.509	0.086	0.698	5.000	40.526
0.7	0.035	0.015	0.1214	I	33.438	-	35.228	0.487	-	0.513	0.130	1.073	5.000	41.172
0.8	0.040	0.010	0.1195	II	37.643	-	31.023	0.548	-	0.452	5.000	41.839	0.482	4.034
0.9	0.045	0.005	0.1176	II	34.862	-	33.805	0.508	-	0.492	5.000	42.529	0.077	0.655
1.0	0.050	0.000	0.1156	I	50.964	-	52.036	0.495	-	0.505	0.078	0.676	7.500	64.861

Example for calculation of total mass of surfactant (Table B-2c DTAB-AA Y in hexane)

at  $Y = 0.1$

$$\text{The cationic surfactant ratio (Y)} = \frac{[\text{DTAB}]}{([\text{DTAB}] + [\text{AA Y}])} = 0.1$$

The total surfactant concentration or  $[\text{DTAB}] + [\text{AA Y}] = 0.05 \text{ M}$

The concentration of DTAB,  $[\text{DTAB}] = 0.1 \times 0.05 = 0.005 \text{ M}$

The concentration of AA Y,  $[\text{AA Y}] = 0.05 - 0.005 = 0.045 \text{ M}$

The total surfactant solution volume = 7.5 ml

$[\text{DTAB}]$  0.005 M prepared by DTAB 0.05 M, 0.75 ml

The DTAB used =  $(0.05 \times 0.75) / 1000 = 0.0000375 \text{ mol}$

M.W. of DTAB = 308.35 g/g mole

The mass of DTAB used =  $0.0000375 \times 308.35 = 0.0115631 \text{ g}$

$[\text{AA Y}]$  0.005 M prepared by AA Y 0.05 M, 6.75 ml

The AA Y used =  $(0.05 \times 6.75) / 1000 = 0.0003375 \text{ mol}$

M.W. of AA Y = 360.00 g/g mole

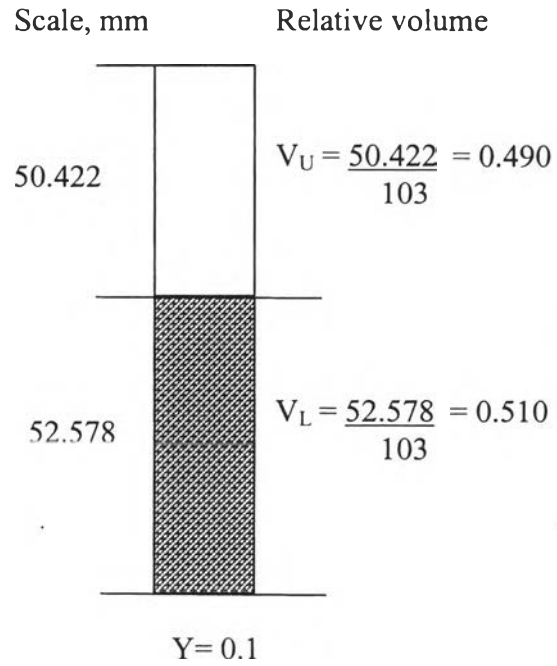
The mass of DTAB used =  $0.0003375 \times 360.00 = 0.1215 \text{ g}$

The total mass of surfactant =  $0.0115631 + 0.1215 = 0.1331 \text{ g}$

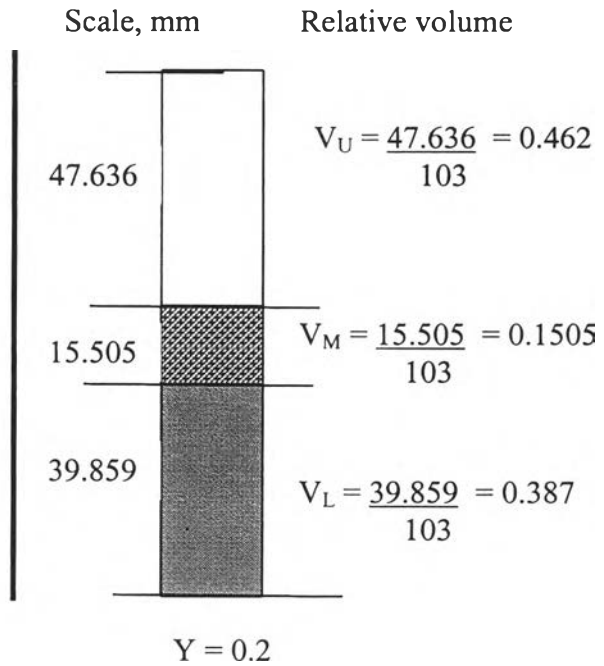
Example for calculation of relative volume (Table B-2c DTAB-AA Y in hexane)



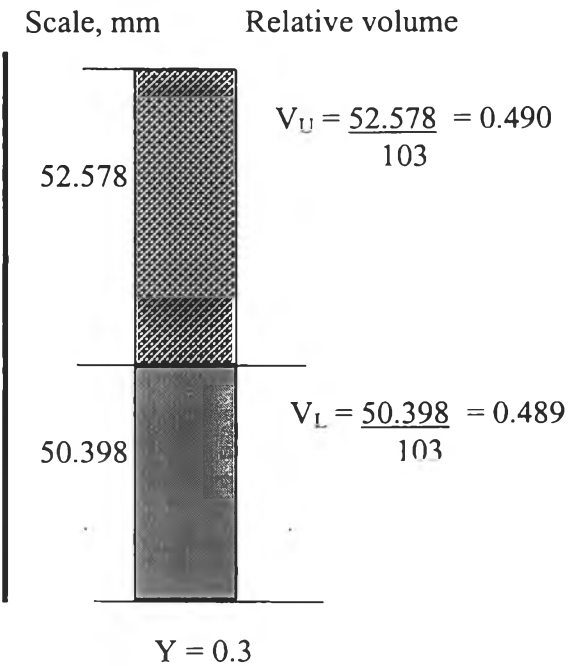
Winsor type I



Winsor type III



Winsor type II



Example for calculation of solubilization parameter (Table B-2c DTAB-AA Y in hexane)

Winsor type	Y	M <sub>S</sub> (g)	Total phase height (mm)	V <sub>O</sub> (ml)	SP <sub>O</sub> (ml/g)	V <sub>W</sub> (ml)	SP <sub>W</sub> (ml/g)
I	0.1	0.1331	103	$(103/6.8667)/2 - (50.422/6.8667) = 0.157$	$0.157/0.1331 = 1.179$	$(103/6.8667) /2 = 7.50$	$7.50/0.1331 = 6.364$
III	0.2	0.1311	103	$(103/6.8667) /2 - (47.636/6.8667) = 0.563$	$0.563/0.1311 = 4.291$	$(103/6.8667) /2 - (39.859/6.8667) = 1.695$	$1.695/0.1311 = 12.929$
II	0.3	0.1292	103	$(103/6.8667) /2 = 7.50$	$7.50/0.1292 = 58.054$	$(103/6.8667)/2 - (50398/6.8667) = 0.160$	$0.160/0.1292 = 1.242$

## APPENDIX C

### Experimental Data from Interfacial Tension Measurement

**Table C** The interfacial tension between excess phase and microemulsion phase for varying cationic surfactant mole ratio scan at 0.05 M total surfactant concentration

Y	Hexane								Hexadecane	TCE
	SDS- DTAB	SDS- CTAB	SDS- DDAB	SDS- DTDACl	DTAB- AOT	DTAB- AMA	DTAB- AAV	DTAB- Dowfax8390	DTAB- AAV	DTAB- AAV
0.0	1.907	1.907	1.907	1.907	0.427	1.653	2.180	3.258	5.250	0.186
0.1	-	1.268	0.511	-	0.644	0.267	0.334	6.578	0.9251	0.312
0.2	1.720	-	0.404	-	1.222	-	0.076	-	0.340	0.425
0.3	0.269	-	-	0.919	1.693	0.120	0.100	5.248	-	1.937
0.4	0.175	-	2.099	3.126	3.281	0.515	0.372	2.996	0.349	4.727
0.5	-	-	-	0.522	2.060	0.919	0.358	1.358	0.927	5.338
0.6	-	-	3.990	1.042	0.556	0.284	0.149	1.647	0.316	0.989
0.7	0.382	0.780	3.177	0.7127	0.034	0.093	0.198	0.434	0.689	0.295
0.8	0.837	0.985	1.728	0.418	0.395	0.592	0.733	0.963	2.085	6.539
0.9	1.925	1.149	0.839	0.395	0.985	1.385	1.641	1.617	2.115	7.741
1.0	2.480	2.478	0.361	0.054	2.480	2.480	2.480	2.480	9.376	1.242

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