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APPENDIX A

Experimental Data from Phase Diagram and Solubilization Studies

Table A-1a Winsor type of microemulsion and phase volume at different SDS and NaCl concentrations for microemulsion containing propanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
24.0	1.9908	3010	1990	50	0.250	4.000	I	10.85	10.70	-	5.28	5.43	2.65	2.73	-
				70	0.350	3.600	I	12.30	12.20	-	6.05	6.15	3.04	3.09	-
				80	0.400	3.400	I	11.05	11.00	-	5.48	5.53	2.75	2.78	-
				85	0.425	3.300	IV	12.00	-	-	6.00	6.00	3.01	3.01	-
				90	0.450	3.200	IV	12.10	-	-	6.05	6.05	3.04	3.04	-
				110	0.550	2.800	IV	12.05	-	-	6.03	6.03	3.03	3.03	-
				130	0.650	2.400	IV	12.40	-	-	6.20	6.20	3.11	3.11	-
				150	0.750	2.000	IV	11.15	-	-	5.58	5.58	2.80	2.80	-
				170	0.850	1.600	IV	10.80	-	-	5.40	5.40	2.71	2.71	-
				180	0.900	1.400	IV	12.40	-	-	6.20	6.20	3.11	3.11	-
				185	0.925	1.300	IV	11.88	-	-	5.94	5.94	2.98	2.98	-
				190	0.950	1.200	II	12.25	0.60	-	6.13	5.53	3.08	2.78	-
				210	1.050	0.800	II	11.80	1.70	-	5.90	4.20	2.96	2.11	-
				230	1.150	0.400	II	12.50	2.55	-	6.25	3.70	3.14	1.86	-

Table A-1b Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing propanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
21.6	1.7917	2710	2290	100	0.500	3.000	I	10.90	10.50	-	5.05	5.45	2.82	3.04	-
				110	0.550	2.800	I	11.00	10.70	-	5.20	5.50	2.90	3.07	-
				120	0.600	2.600	I	11.00	10.80	-	5.30	5.50	2.96	3.07	-
				130	0.650	2.400	I	11.00	10.95	-	5.45	5.50	3.04	3.07	-
				135	0.675	2.300	IV	12.00	-	-	6.00	6.00	3.35	3.35	-
				140	0.700	2.200	IV	11.10	-	-	5.55	5.55	3.10	3.10	-
				150	0.750	2.000	IV	10.90	-	-	5.45	5.45	3.04	3.04	-
				170	0.850	1.600	IV	11.20	-	-	5.60	5.60	3.13	3.13	-
				180	0.900	1.400	IV	11.30	-	-	5.65	5.65	3.15	3.15	-
				185	0.925	1.300	IV	10.50	-	-	5.25	5.25	2.93	2.93	-
				190	0.950	1.200	II	11.30	0.22	-	5.65	5.43	3.15	3.03	-
				200	1.000	1.000	II	10.60	0.80	-	5.30	4.50	2.96	2.51	-

Table A-1c Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing propanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
19.8	1.6424	2485	2515	100	0.500	3.000	I	11.70	10.85	-	5.00	5.85	3.04	3.56	-
				120	0.600	2.600	I	11.90	11.35	-	5.40	5.95	3.29	3.62	-
				140	0.700	2.200	I	11.70	11.00	-	5.15	5.85	3.14	3.56	-
				140	0.700	2.200	I	11.70	11.50	-	5.65	5.85	3.44	3.56	-
				150	0.750	2.000	I	11.80	11.60	-	5.70	5.90	3.47	3.59	-
				155	0.775	1.900	IV	12.20	-	-	6.10	6.10	3.71	3.71	-
				160	0.800	1.800	IV	12.10	-	-	6.05	6.05	3.68	3.68	-
				170	0.850	1.600	IV	11.70	-	-	5.85	5.85	3.56	3.56	-
				175	0.875	1.500	IV	11.90	-	-	5.95	5.95	3.62	3.62	-
				180	0.900	1.400	II	12.30	0.02	-	6.15	6.13	3.74	3.73	-
				180	0.900	1.400	II	11.30	0.07	-	5.65	5.58	3.44	3.40	-
				185	0.925	1.300	II	11.80	0.48	-	5.90	5.42	3.59	3.30	-
				190	0.950	1.200	II	12.30	1.35	-	6.15	4.80	3.74	2.92	-
				190	0.950	1.200	II	11.20	0.75	-	5.60	4.85	3.41	2.95	-
				200	1.000	1.000	II	12.10	1.95	-	6.05	4.10	3.68	2.50	-
				220	1.100	0.600	II	11.50	2.40	-	5.75	3.35	3.50	2.04	-

Table A-1d Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing propanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
18.0	1.4931	2260	2740	150	0.750	2.000	I	11.30	10.50	-	4.85	5.65	3.25	3.78	-
				160	0.800	1.800	I	11.00	10.40	-	4.90	5.50	3.28	3.68	-
				170	0.850	1.600	I	11.30	11.00	-	5.35	5.65	3.58	3.78	-
				180	0.900	1.400	I	11.70	11.60	-	5.75	5.85	3.85	3.92	-
				185	0.925	1.300	II	11.10	0.07	-	5.55	5.48	3.72	3.67	-
				190	0.950	1.200	II	10.90	0.40	-	5.45	5.05	3.65	3.38	-
				200	1.000	1.000	II	11.10	1.30	-	5.55	4.25	3.72	2.85	-
15.6	1.2940	1955	3045	150	0.750	2.000	I	11.90	10.70	-	4.75	5.95	3.67	4.60	-
				170	0.850	1.600	I	12.00	11.15	-	5.15	6.00	3.98	4.64	-
				180	0.900	1.400	I	11.40	10.88	-	5.18	5.70	4.00	4.40	-
				185	0.925	1.300	III	11.10	10.70	0.50	5.15	5.05	3.98	3.90	-
				190	0.950	1.200	III	12.05	11.90	1.45	5.88	4.58	4.54	3.54	-
				200	1.000	1.000	III	11.80	11.75	2.20	5.85	3.70	4.52	2.86	-
				205	1.025	0.900	II	11.40	2.20	-	5.70	3.50	4.40	2.70	-
				210	1.050	0.800	II	11.65	2.50	-	5.83	3.33	4.50	2.57	-
				230	1.150	0.400	II	11.15	2.90	-	5.58	2.68	4.31	2.07	-
				250	1.250	0.000	II	12.00	3.90	-	6.00	2.10	4.64	1.62	-

Table A-1e Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing propanoic acid.

SDS (%)	SDS (g)	Fatty acid (µl)	Hexane (µl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
13.2	1.0949	1655	3345	170	0.850	1.600	I	10.35	8.80	-	3.63	5.18	3.31	4.73	-
				185	0.925	1.300	Iil	10.60	9.50	0.30	4.20	5.00	3.84	4.57	-
				190	0.950	1.200	III	10.02	9.50	0.40	4.49	4.61	4.10	4.21	-
				210	1.050	0.800	III	10.55	10.00	1.85	4.73	3.43	4.32	3.13	-
				215	1.075	0.700	III	11.80	11.78	3.05	5.88	2.85	5.37	2.60	-
				220	1.100	0.600	II	10.33	2.35	-	5.17	2.82	4.72	2.57	-
				230	1.150	0.400	II	10.80	3.00	-	5.40	2.40	4.93	2.19	-
				240	1.200	0.200	II	10.10	2.75	-	5.05	2.30	4.61	2.10	-
				250	1.250	0.000	II	10.60	3.20	-	5.30	2.10	4.84	1.92	-
10.2	0.8461	1280	3720	150	0.750	2.000	I	10.90	8.47	-	3.02	5.45	3.57	6.44	-
				170	0.850	1.600	I	11.00	8.75	-	3.25	5.50	3.84	6.50	-
				180	0.900	1.400	I	11.10	9.10	-	3.55	5.55	4.20	6.56	-
				185	0.925	1.300	I	11.60	9.60	-	3.80	5.80	4.49	6.85	-
				190	0.950	1.200	III	11.00	9.25	1.02	3.75	4.48	4.43	5.29	-
				230	1.150	0.400	III	11.50	11.35	3.50	5.60	2.25	6.62	2.66	-
				235	1.175	0.300	III	10.90	10.80	3.30	5.35	2.15	6.32	2.54	-
				240	1.200	0.200	II	11.05	3.35	-	5.53	2.18	6.53	2.57	-
				250	1.250	0.000	II	10.80	3.70	-	5.40	1.70	6.38	2.01	-

Table A-1f Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing propanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
7.2	0.5972	905	4095	170	0.850	1.600	I	9.90	7.10	-	2.15	4.95	3.60	8.29	-
				180	0.900	1.400	I	10.20	7.45	-	2.35	5.10	3.94	8.54	-
				190	0.950	1.200	I	10.05	7.60	-	2.58	5.03	4.31	8.41	-
				200	1.000	1.000	III	9.90	7.95	0.01	3.00	4.94	5.02	8.27	-
				205	1.025	0.900	III	10.80	8.70	1.30	3.30	4.10	5.53	6.87	-
				210	1.050	0.800	III	10.30	8.15	0.90	3.00	4.25	5.02	7.12	-
				220	1.100	0.600	III	10.20	8.30	1.70	3.20	3.40	5.36	5.69	-
				230	1.150	0.400	III	10.20	8.70	2.30	3.60	2.80	6.03	4.69	-
				240	1.200	0.200	III	10.00	9.40	2.83	4.40	2.17	7.37	3.63	-
				245	1.225	0.100	III	10.90	10.55	3.30	5.10	2.15	8.54	3.60	-
				250	1.250	0.000	II	10.10	3.10	-	5.05	1.95	8.46	3.27	-

Table A-2a Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing butanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
21.6	1.7917	2805	2195	0	0.000	5.000	IV	10.80	-	-	5.40	5.40	3.01	3.01	-
				1	0.005	4.980	IV	11.40	-	-	5.70	5.70	3.18	3.18	-
				2	0.010	4.960	IV	11.05	-	-	5.53	5.53	3.08	3.08	-
				3	0.015	4.940	IV	11.05	-	-	5.53	5.53	3.08	3.08	-
				4	0.020	4.920	IV	10.90	-	-	5.45	5.45	3.04	3.04	-
				5	0.025	4.900	IV	11.20	-	-	5.60	5.60	3.13	3.13	-
				10	0.050	4.800	IV	10.75	-	-	5.38	5.38	3.00	3.00	-
				20	0.100	4.600	IV	10.75	-	-	5.38	5.38	3.00	3.00	-
				40	0.200	4.200	IV	11.15	-	-	5.58	5.58	3.11	3.11	-
				60	0.300	3.800	IV	11.10	-	-	5.55	5.55	3.10	3.10	-
				65	0.325	3.700	II	11.25	0.05	-	5.63	5.58	3.14	3.11	-
				70	0.350	3.600	II	11.40	0.30	-	5.70	5.40	3.18	3.01	-
				80	0.400	3.400	II	10.90	0.65	-	5.45	4.80	3.04	2.68	-
				100	0.500	3.000	II	11.00	1.40	-	5.50	4.10	3.07	2.29	-

Table A-2b Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing butanoic acid.

SDS (%)	SDS (g)	Fatty acid (µl)	Hexane (µl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
18.0	1.4931	2340	2660	20	0.100	4.600	I	10.80	10.45	-	5.05	5.40	3.38	3.62	-
				30	0.150	4.400	I	10.90	10.85	-	5.40	5.45	3.62	3.65	-
				35	0.175	4.300	IV	11.95	-	-	5.98	5.98	4.00	4.00	-
				40	0.200	4.200	IV	11.20	-	-	5.60	5.60	3.75	3.75	-
				60	0.300	3.800	IV	11.17	-	-	5.59	5.59	3.74	3.74	-
				65	0.325	3.700	II	10.20	0.07	-	5.10	5.03	3.42	3.37	-
				70	0.350	3.600	II	10.20	0.35	-	5.10	4.75	3.42	3.18	-
				80	0.400	3.400	II	11.10	1.00	-	5.55	4.55	3.72	3.05	-
				100	0.500	3.000	II	10.40	1.70	-	5.20	3.50	3.48	2.34	-
15.6	1.2940	2025	2975	20	0.100	4.600	I	10.65	9.25	-	3.93	5.33	3.03	4.12	-
				40	0.200	4.200	I	10.90	10.20	-	4.75	5.45	3.67	4.21	-
				50	0.250	4.000	I	10.25	10.20	-	5.08	5.13	3.92	3.96	-
				55	0.275	3.900	IV	11.25	-	-	5.63	5.63	4.35	4.35	-
				60	0.300	3.800	IV	10.62	-	-	5.31	5.31	4.10	4.10	-
				65	0.325	3.700	IV	10.90	-	-	5.45	5.45	4.21	4.21	-
				70	0.350	3.600	II	10.50	0.07	-	5.25	5.18	4.06	4.00	-
				80	0.400	3.400	II	10.80	0.85	-	5.40	4.55	4.17	3.52	-
				100	0.500	3.000	II	11.05	1.89	-	5.53	3.64	4.27	2.81	-

Table A-2c Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing butanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
13.2	1.0949	1715	3285	60	0.300	3.800	I	10.70	10.02	-	4.67	5.35	4.27	4.89	-
				70	0.350	3.600	I	10.70	10.65	-	5.30	5.35	4.84	4.89	-
				71	0.355	3.580	IV	10.40	-	-	5.20	5.20	4.75	4.75	-
				72	0.360	3.560	IV	10.40	-	-	5.20	5.20	4.75	4.75	-
				73	0.365	3.540	IV	10.30	-	-	5.15	5.15	4.70	4.70	-
				74	0.370	3.520	II	10.20	0.02	-	5.10	5.10	4.66	4.66	-
				75	0.375	3.500	II	11.00	0.25	-	5.50	5.25	5.02	4.79	-
				80	0.400	3.400	II	10.18	0.70	-	5.09	4.39	4.65	4.01	-
				90	0.450	3.200	II	10.70	1.30	-	5.35	4.05	4.89	3.70	-
10.8	0.8959	1405	3595	60	0.300	3.800	I	10.50	8.60	-	3.35	5.25	3.74	5.86	-
				70	0.350	3.600	I	10.15	8.75	-	3.68	5.08	4.10	5.66	-
				75	0.375	3.500	I	11.20	10.00	-	4.40	5.60	4.91	6.25	-
				80	0.400	3.400	III	10.20	9.80	0.02	4.70	5.08	5.25	5.67	-
				85	0.425	3.300	III	10.40	10.00	0.30	4.80	4.90	5.36	5.47	-
				90	0.450	3.200	II	10.00	0.78	-	5.00	4.22	5.58	4.71	-
				100	0.500	3.000	II	10.20	1.53	-	5.10	3.57	5.69	3.98	-

Table A-2d Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing butanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
7.8	0.6470	1015	3985	60	0.300	3.800	I	10.10	7.15	-	2.10	5.05	3.25	7.81	-
				80	0.400	3.400	I	10.30	7.90	-	2.75	5.15	4.25	7.96	-
				100	0.500	3.000	I	9.90	8.50	-	3.55	4.95	5.49	7.65	-
				105	0.525	2.900	III	10.40	9.45	0.66	4.25	4.54	6.57	7.02	-
				110	0.550	2.800	III	10.10	9.45	0.86	4.40	4.19	6.80	6.48	-
				115	0.575	2.700	III	10.45	10.00	1.30	4.78	3.93	7.38	6.07	-
				120	0.600	2.600	II	10.15	1.50	-	5.08	3.58	7.84	5.53	-
				140	0.700	2.200	II	9.95	2.30	-	4.98	2.68	7.69	4.13	-
4.8	0.3982	625	4375	100	0.500	3.000	I	9.70	6.45	-	1.60	4.85	4.02	12.18	-
				120	0.600	2.600	I	10.00	7.40	-	2.40	5.00	6.03	12.56	-
				130	0.650	2.400	I	10.00	8.10	-	3.10	5.00	7.79	12.56	-
				135	0.675	2.300	III	10.10	8.45	0.30	3.40	4.75	8.54	11.93	-
				140	0.700	2.200	III	10.00	9.00	1.60	4.00	3.40	10.05	8.54	-
				145	0.725	2.100	III	10.00	9.30	1.30	4.30	3.70	10.80	9.29	-
				150	0.750	2.000	III	10.45	10.40	1.90	5.18	3.33	13.00	8.35	-
				155	0.775	1.900	II	10.65	2.85	-	5.33	2.48	13.37	6.22	-
				160	0.800	1.800	II	9.10	2.68	-	4.55	1.87	11.43	4.70	-
				170	0.850	1.600	II	10.55	3.40	-	5.28	1.88	13.25	4.71	-

Table A-3a Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing pentanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
13.2	1.0949	1745	3255	10	0.050	4.800	I	11.80	11.50	-	5.60	5.90	5.11	5.39	Gel
				15	0.075	4.700	IV	11.30	-	-	5.65	5.65	5.16	5.16	Gel
				20	0.100	4.600	IV	12.00	-	-	6.00	6.00	5.48	5.48	Gel
				30	0.150	4.400	IV	11.85	-	-	5.93	5.93	5.41	5.41	Gel
				40	0.200	4.200	IV	11.65	-	-	5.83	5.83	5.32	5.32	Gel
				45	0.225	4.100	II	11.40	0.60	-	5.70	5.10	5.21	4.66	Gel
				50	0.250	4.000	II	11.65	1.35	-	5.83	4.48	5.32	4.09	Gel
				70	0.350	3.600	II	11.85	2.60	-	5.93	3.33	5.41	3.04	Gel
				90	0.450	3.200	II	11.90	2.70	-	5.95	3.25	5.43	2.97	Gel
9.6	0.7963	1270	3730	10	0.050	4.800	I	10.80	8.75	-	3.35	5.40	4.21	6.78	Gel
				20	0.100	4.600	I	10.30	8.70	-	3.55	5.15	4.46	6.47	Gel
				30	0.150	4.400	I	11.70	11.00	-	5.15	5.85	6.47	7.35	Gel
				35	0.175	4.300	I	11.50	11.48	-	5.73	5.75	7.20	7.22	Gel
				40	0.200	4.200	IV	10.40	-	-	5.20	5.20	6.53	6.53	Gel
				50	0.250	4.000	IV	11.20	-	-	5.60	5.60	7.03	7.03	Gel
				55	0.275	3.900	II	10.10	0.20	-	5.05	4.85	6.34	6.09	Gel
				60	0.300	3.800	II	10.00	0.60	-	5.00	4.40	6.28	5.53	Gel
				80	0.400	3.400	II	10.60	2.10	-	5.30	3.20	6.66	4.02	Gel

Table A-3b Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing pentanoic acid.

SDS (%)	SDS (g)	Fatty acid (µl)	Hexane (µl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
7.2	0.5972	955	4045	30	0.150	4.400	I	9.80	7.20	-	2.30	4.90	3.85	8.20	Gel
				50	0.250	4.000	I	10.00	9.50	-	4.50	5.00	7.54	8.37	Gel
				55	0.275	3.900	I	11.20	11.15	-	5.55	5.60	9.29	9.38	Gel
				60	0.300	3.800	IV	11.00	-	-	5.50	5.50	9.21	9.21	Gel
				70	0.350	3.600	IV	9.80	-	-	4.90	4.90	8.20	8.20	Gel
				75	0.375	3.500	II	11.30	0.40	-	5.65	5.25	9.46	8.79	Gel
				80	0.400	3.400	II	10.10	2.30	-	5.05	2.75	8.46	4.60	Gel
				90	0.450	3.200	II	10.40	1.90	-	5.20	3.30	8.71	5.53	Gel
				110	0.550	2.800	II	9.80	3.45	-	4.90	1.45	8.20	2.43	Gel
6.0	0.4977	795	4205	50	0.250	4.000	I	10.85	8.55	-	3.13	5.43	6.28	10.90	Gel
				60	0.300	3.800	I	10.80	9.70	-	4.30	5.40	8.64	10.85	Gel
				65	0.325	3.700	I	9.90	9.50	-	4.55	4.95	9.14	9.95	Gel
				70	0.350	3.600	IV	11.00	-	-	5.50	5.50	11.05	11.05	Gel
				80	0.400	3.400	IV	11.00	-	-	5.50	5.50	11.05	11.05	Gel
				90	0.450	3.200	II	10.80	1.50	-	5.40	3.90	10.85	7.84	Gel
				110	0.550	2.800	II	10.80	2.90	-	5.40	2.50	10.85	5.02	Gel

Table A-3c Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing pentanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
4.8	0.3982	635	4365	50	0.250	4.000	I	11.60	6.65	-	0.85	5.80	2.13	14.57	Gel
				70	0.350	3.600	I	10.90	8.50	-	3.05	5.45	7.66	13.69	Gel
				75	0.375	3.500	III	11.00	9.10	0.70	3.60	4.80	9.04	12.05	Gel
				80	0.400	3.400	III	10.90	9.50	1.00	4.05	4.45	10.17	11.18	Gel
				90	0.450	3.200	(II)	10.90	2.00	-	5.45	3.45	13.69	8.66	Gel
				110	0.550	2.800	II	10.05	3.20	-	5.03	1.83	12.62	4.58	Gel
3.6	0.2986	475	4525	40	0.200	4.200	I	10.20	5.80	-	0.70	5.10	2.34	17.08	Gel
				60	0.300	3.800	I	10.30	6.00	-	0.85	5.15	2.85	17.25	Gel
				70	0.350	3.600	I	10.30	7.10	-	1.95	5.15	6.53	17.25	Gel
				80	0.400	3.400	III	10.05	8.20	2.00	3.18	3.03	10.63	10.13	Gel
				100	0.500	3.000	II	10.10	3.90	-	5.05	1.15	16.91	3.85	Gel
				120	0.600	2.600	II	10.20	4.30	-	5.10	0.80	17.08	2.68	Gel

Table A-4a Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing hexanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
10.8	0.8960	1450	3550	5	0.025	4.900	I	11.60	10.30	-	4.50	5.80	5.02	6.47	Gel
				10	0.050	4.800	IV	11.40	-	-	5.70	5.70	6.36	6.36	Gel
				20	0.100	4.600	IV	10.35	-	-	5.18	5.18	5.78	5.78	Gel
				25	0.125	4.500	IV	11.40	-	-	5.70	5.70	6.36	6.36	Gel
				30	0.150	4.400	II	11.30	1.50	-	5.65	4.15	6.31	4.63	Gel
				40	0.200	4.200	II	9.95	1.70	-	4.98	3.28	5.55	3.66	Gel
				60	0.300	3.800	II	10.20	1.80	-	5.10	3.30	5.69	3.68	Gel
				80	0.400	3.400	II	10.15	2.50	-	5.08	2.58	5.66	2.87	Gel
				100	0.500	3.000	II	10.70	3.30	-	5.35	2.05	5.97	2.29	Gel
9.6	0.7963	1290	3710	20	0.100	4.600	I	11.40	11.20	-	5.50	5.70	6.91	7.16	Gel
				25	0.125	4.500	IV	10.00	-	-	5.00	5.00	6.28	6.28	Gel
				30	0.150	4.400	IV	10.30	-	-	5.15	5.15	6.47	6.47	Gel
				40	0.200	4.200	IV	11.50	-	-	5.75	5.75	7.22	7.22	Gel
				45	0.225	4.100	II	10.00	0.42	-	5.00	4.58	6.28	5.75	Gel
				50	0.250	4.000	II	10.40	0.97	-	5.20	4.23	6.53	5.31	Gel
				60	0.300	3.800	II	11.40	1.50	-	5.70	4.20	7.16	5.27	Gel
				80	0.400	3.400	II	11.40	4.10	-	5.70	1.60	7.16	2.01	Gel
				100	0.500	3.000	II	11.60	4.60	-	5.80	1.20	7.28	1.51	Gel

Table A-4b Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing hexanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
8.4	0.6968	1125	3875	10	0.050	4.800	I	11.20	8.50	-	2.90	5.60	4.16	8.04	Gel
				15	0.075	4.700	I	11.30	9.80	-	4.15	5.65	5.96	8.11	Gel
				20	0.100	4.600	IV	10.25	-	-	5.13	5.13	7.36	7.36	Gel
				40	0.200	4.200	IV	9.95	-	-	4.98	4.98	7.14	7.14	Gel
				45	0.225	4.100	IV	11.25	-	-	5.63	5.63	8.07	8.07	Gel
				50	0.250	4.000	II	11.10	1.10	-	5.55	4.45	7.96	6.39	Gel
				60	0.300	3.800	II	9.90	1.55	-	4.95	3.40	7.10	4.88	Gel
				80	0.400	3.400	II	10.15	2.50	-	5.08	2.58	7.28	3.70	Gel
				100	0.500	3.000	II	10.35	3.00	-	5.18	2.18	7.43	3.12	Gel
7.2	0.5972	965	4035	20	0.100	4.600	I	11.60	9.30	-	3.50	5.80	5.86	9.71	Gel
				25	0.125	4.500	IV	10.20	-	-	5.10	5.10	8.54	8.54	Gel
				30	0.150	4.400	IV	9.90	-	-	4.95	4.95	8.29	8.29	Gel
				40	0.200	4.200	IV	11.20	-	-	5.60	5.60	9.38	9.38	Gel
				50	0.250	4.000	IV	10.10	-	-	5.05	5.05	8.46	8.46	Gel
				60	0.300	3.800	II	11.20	-	-	5.60	5.60	9.38	9.38	Gel
				80	0.400	3.400	II	11.30	4.00	-	5.65	1.65	9.46	2.76	Gel
				100	0.500	3.000	II	11.35	4.60	-	5.68	1.08	9.50	1.80	Gel

Table A-4c Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing hexanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
6.0	0.4977	805	4195	20	0.100	4.600	I	10.00	6.80	-	1.80	5.00	3.62	10.05	Gel
				30	0.150	4.400	I	10.90	10.05	-	4.60	5.45	9.24	10.95	Gel
				35	0.175	4.300	IV	10.90	-	-	5.45	5.45	10.95	10.95	Gel
				40	0.200	4.200	IV	9.70	-	-	4.85	4.85	9.74	9.74	Gel
				60	0.300	3.800	II	10.10	0.20	-	5.05	4.85	10.15	9.74	Gel
				80	0.400	3.400	II	9.80	2.22	-	4.90	2.68	9.85	5.38	Gel
				100	0.500	3.000	II	10.00	2.60	-	5.00	2.40	10.05	4.82	Gel
4.8	0.3982	645	4355	40	0.200	4.200	I	11.30	8.40	-	2.75	5.65	6.91	14.19	Gel
				45	0.225	4.100	I	10.00	9.40	-	4.40	5.00	11.05	12.56	Gel
				50	0.250	4.000	IV	9.80	-	-	4.90	4.90	12.31	12.31	Gel
				60	0.300	3.800	IV	11.00	-	-	5.50	5.50	13.81	13.81	Gel
				80	0.400	3.400	IV	11.00	-	-	5.50	5.50	13.81	13.81	Gel
				90	0.450	3.200	IV	10.20	-	-	5.10	5.10	12.81	12.81	Gel
				95	0.475	3.100	IV	10.10	-	-	5.05	5.05	12.68	12.68	Gel
				100	0.500	3.000	II	11.20	1.00	-	5.60	4.60	14.06	11.55	Gel
				120	0.600	2.600	II	11.20	2.50	-	5.60	3.10	14.06	7.79	Gel

Table A-4d Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing hexanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
3.6	0.2986	485	4515	20	0.100	4.600	I	10.00	5.40	-	0.40	5.00	1.34	16.74	Gel
				40	0.200	4.200	I	10.00	6.40	-	1.40	5.00	4.69	16.74	Gel
				50	0.250	4.000	I	10.90	7.90	-	2.45	5.45	8.20	18.25	Gel
				55	0.275	3.900	I	10.70	8.30	-	2.95	5.35	9.88	17.92	Gel
				80	0.400	3.400	III	9.80	8.90	4.10	4.00	0.80	13.40	2.68	Gel
				100	0.500	3.000	III	9.70	8.70	3.30	3.85	1.55	12.89	5.19	Gel
				120	0.600	2.600	II	10.80	4.20	-	5.40	1.20	18.08	4.02	Gel
				140	0.700	2.200	II	10.70	2.60	-	5.35	2.75	17.92	9.21	Gel
				160	0.800	1.800	II	10.70	2.60	-	5.35	2.75	17.92	9.21	Gel
2.4	0.1991	320	4680	40	0.200	4.200	I	11.00	6.10	-	0.60	5.50	3.01	27.62	Gel
				50	0.250	4.000	I	9.90	7.50	-	2.55	4.95	12.81	24.86	Gel
				55	0.275	3.900	I	9.90	7.80	-	2.85	4.95	14.31	24.86	Gel
				60	0.300	3.800	III	10.80	9.00	2.00	3.60	3.40	18.08	17.08	Gel
				80	0.400	3.400	III	10.70	10.00	4.80	4.65	0.55	23.36	2.76	Gel
				85	0.425	3.300	II	9.50	4.10	-	4.75	0.65	23.86	3.26	Gel
				90	0.450	3.200	II	9.80	4.45	-	4.90	0.45	24.61	2.26	Gel
				100	0.500	3.000	II	10.90	5.15	-	5.45	0.30	27.37	1.51	Gel
				120	0.600	2.600	II	10.80	5.10	-	5.40	0.30	27.12	1.51	Gel

Table A-5a Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing heptanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
10.8	0.8959	1465	3535	1	0.005	4.980	IV	11.40	-	-	5.70	5.70	6.36	6.36	Gel
				2	0.010	4.960	IV	11.25	-	-	5.63	5.63	6.28	6.28	Gel
				3	0.015	4.940	IV	11.30	-	-	5.65	5.65	6.31	6.31	Gel
				4	0.020	4.920	IV	11.40	-	-	5.70	5.70	6.36	6.36	Gel
				5	0.025	4.900	IV	11.20	-	-	5.60	5.60	6.25	6.25	Gel
				20	0.100	4.600	IV	11.00	-	-	5.50	5.50	6.14	6.14	Gel
				25	0.125	4.500	IV	11.40	-	-	5.70	5.70	6.36	6.36	Gel
				30	0.150	4.400	II	11.40	1.15	-	5.70	4.55	6.36	5.08	Gel
				40	0.200	4.200	II	11.50	2.25	-	5.75	3.50	6.42	3.91	Gel
				60	0.300	3.800	II	11.40	3.50	-	5.70	2.20	6.36	2.46	Gel
				100	0.500	3.000	II	11.60	4.25	-	5.80	1.55	6.47	1.73	Gel
9.6	0.7963	1305	3695	5	0.025	4.900	IV	10.00	-	-	5.19	5.19	6.52	6.52	Gel
				10	0.050	4.800	IV	10.40	-	-	5.39	5.39	6.77	6.77	Gel
				20	0.100	4.600	IV	11.50	-	-	5.62	5.62	7.06	7.06	Gel
				25	0.125	4.500	IV	10.30	-	-	5.34	5.34	6.71	6.71	Gel
				30	0.150	4.400	II	10.30	0.08	-	5.34	4.98	6.71	6.26	Gel
				40	0.200	4.200	II	11.20	2.15	-	5.47	3.41	6.86	4.29	Gel
				60	0.300	3.800	II	11.20	3.35	-	5.47	2.17	6.86	2.73	Gel

Table A-5b Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing heptanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
8.4	0.6968	1140	3860	5	0.025	4.900	IV	10.90	-	-	5.45	5.45	7.82	7.82	Gel
				10	0.050	4.800	IV	10.80	-	-	5.40	5.40	7.75	7.75	Gel
				20	0.100	4.600	IV	11.40	-	-	5.70	5.70	8.18	8.18	Gel
				25	0.125	4.500	II	11.00	3.70	-	5.50	1.80	7.89	2.58	Gel
				30	0.150	4.400	II	10.90	2.75	-	5.45	2.70	7.82	3.87	Gel
				40	0.200	4.200	II	11.20	1.85	-	5.60	3.75	8.04	5.38	Gel
				60	0.300	3.800	II	11.40	3.45	-	5.70	2.25	8.18	3.23	Gel
				80	0.400	3.400	II	11.20	3.95	-	5.60	1.65	8.04	2.37	Gel
				100	0.500	3.000	II	11.30	4.35	-	5.65	1.30	8.11	1.87	Gel
7.2	0.5972	975	4025	10	0.050	4.800	I	10.10	7.80	-	2.75	5.05	4.60	8.46	Gel
				15	0.075	4.700	IV	10.05	-	-	5.03	5.03	8.41	8.41	Gel
				20	0.100	4.600	IV	11.30	-	-	5.65	5.65	9.46	9.46	Gel
				30	0.150	4.400	IV	9.90	-	-	4.95	4.95	8.29	8.29	Gel
				35	0.175	4.300	II	10.00	0.05	-	5.00	4.95	8.37	8.29	Gel
				40	0.200	4.200	II	11.30	0.70	-	5.65	4.95	9.46	8.29	Gel
				60	0.300	3.800	II	11.20	3.20	-	5.60	2.40	9.38	4.02	Gel
				80	0.400	3.400	II	11.30	3.95	-	5.65	1.70	9.46	2.85	Gel

Table A-5c Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing heptanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
6.0	0.4977	815	4185	10	0.050	4.800	I	11.10	6.50	-	0.95	5.55	1.91	11.15	Gel
				15	0.075	4.700	I	10.80	7.70	-	2.30	5.40	4.62	10.85	Gel
				20	0.100	4.600	IV	11.35	-	-	5.68	5.68	11.40	11.40	Gel
				40	0.200	4.200	IV	11.10	-	-	5.55	5.55	11.15	11.15	Gel
				45	0.225	4.100	II	10.80	1.05	-	5.40	4.35	10.85	8.74	Gel
				50	0.250	4.000	II	10.95	3.00	-	5.48	2.48	11.00	4.97	Gel
				60	0.300	3.800	II	11.10	3.35	-	5.55	2.20	11.15	4.42	Gel
				80	0.400	3.400	II	11.15	4.80	-	5.58	0.78	11.20	1.56	Gel
				100	0.500	3.000	II	11.10	4.40	-	5.55	1.15	11.15	2.31	Gel
4.8	0.3982	650	4350	20	0.100	4.600	I	11.30	7.70	-	2.05	5.65	5.15	14.19	Gel
				25	0.125	4.500	I	10.00	7.95	-	2.95	5.00	7.41	12.56	Gel
				30	0.150	4.400	IV	9.80	-	-	4.90	4.90	12.31	12.31	Gel
				40	0.200	4.200	IV	9.90	-	-	4.95	4.95	12.43	12.43	Gel
				50	0.250	4.000	IV	9.80	-	-	4.90	4.90	12.31	12.31	Gel
				55	0.275	3.900	II	10.00	0.60	-	5.00	4.40	12.56	11.05	Gel
				60	0.300	3.800	II	11.00	2.30	-	5.50	3.20	13.81	8.04	Gel
				80	0.400	3.400	II	11.10	3.05	-	5.55	2.50	13.94	6.28	Gel
				100	0.500	3.000	II	11.10	3.00	-	5.55	2.55	13.94	6.40	Gel

Table A-5d Winsor type microemulsion and phase volume at different SDS and NaCl concentration for microemulsion containing heptanoic acid.

SDS (%)	SDS (g)	Fatty acid (μl)	Hexane (μl)	NaCl (g/l)	NaCl (g)	H_2O (ml)	Winsor type	Labeled volume (ml)			V_o	V_w	SP_o	SP_w	Gel
3.6	0.2986	490	4510	20	0.100	4.600	I	11.10	6.15	-	0.60	5.55	2.01	18.59	Gel
				40	0.200	4.200	I	10.80	9.00	-	3.60	5.40	12.06	18.08	Gel
				45	0.225	4.100	III	10.70	8.00	4.40	2.65	0.95	8.87	3.18	Gel
				50	0.250	4.000	III	10.65	8.00	4.90	2.68	0.43	8.96	1.42	Gel
				60	0.300	3.800	II	10.85	4.80	-	5.43	0.63	18.17	2.09	Gel
				80	0.400	3.400	II	10.95	4.35	-	5.48	1.13	18.33	3.77	Gel
				100	0.500	3.000	II	11.00	4.45	-	5.50	1.05	18.42	3.52	Gel
2.4	0.1991	325	4675	20	0.100	4.600	I	10.80	5.80	-	0.40	5.40	2.01	27.12	Gel
				40	0.200	4.200	I	10.70	6.00	-	0.65	5.35	3.26	26.87	Gel
				45	0.225	4.100	I	9.80	6.15	-	1.25	4.90	6.28	24.61	Gel
				50	0.250	4.000	III	9.50	6.30	3.60	1.55	1.15	7.79	5.78	Gel
				65	0.325	3.700	II	9.00	4.20	-	4.50	0.30	22.60	1.51	Gel
				80	0.400	3.400	II	10.90	5.20	-	5.45	0.25	27.37	1.26	Gel
				100	0.500	3.000	II	10.80	5.00	-	5.40	0.40	27.12	2.01	Gel
				120	0.600	2.600	II	9.50	4.00	-	4.75	0.75	23.86	3.77	Gel
				140	0.700	2.200	II	9.70	4.40	-	4.85	0.45	24.36	2.26	Gel
				160	0.800	1.800	II	9.50	4.20	-	4.75	0.55	23.86	2.76	Gel

Table A-6 Optimum solubilization parameter and optimum salinity at different SDS concentration.

C3 fatty acid			C4 fatty acid			C5 fatty acid			C6 fatty acid			C7 fatty acid		
%SDS	S*	SP*	%SDS	S*	SP*	%SDS	S*	SP*	%SDS	S*	SP*	%SDS	S*	SP*
24	85	3.1	21.6	0	3.1	13.2	15	5.2	10.8	10	6.3	10.8	0	6.3
21.6	135	3.3	18	35	4	9.6	35	7.2	9.6	25	6.2	9.6	0	6.5
19.8	155	3.7	15.6	55	4.3	7.2	60	9.2	8.4	20	7.3	8.4	0	7.8
18	183	3.7	13.2	71	4.7	6	70	10.9	7.2	25	8.3	7.2	15	8.5
15.6	184	3.9	10.8	85.8	5.3	4.8	82	10.7	6	35	11	6	20	11.4
13.2	191	4.1	7.8	108	6.4	3.6	79	11.2	4.8	50	12	4.8	30	12.5
10.2	197	4.7	4.8	138	9.5				3.6	65	11	3.6	43	10.2
7.2	222	5.5							2.4	59	17.7	2.4	49	7

NOTE: Example of the calculation for microemulsion preparations

Example SDS 1.2%, NaCl 100 g/L in microemulsion containing propanoic acid

Assuming the microemulsion composing of 5 mL of distilled water and 5 mL of hexanes

g of distilled water	=	(5 mL)(density 1 g/mL)	=	5 g
g of hexanes	=	(5 mL)(density 0.659 g/mL)	=	3.295 g
g of the system	=	5 g + 3.295 g	=	8.295 g
g of SDS	=	(1.2%)(8.295)	=	0.0995 g
g of SDS/ g of propanoic acid	=	40/60		
mL of propanoic acid	=	(0.0995 g SDS)(60 g propanoic acid/40 g SDS)/(density 0.992 g/mL)		
	=	0.1505 mL		
mL of hexanes	=	5-0.1505	=	4.8495 mL
g of NaCl	=	(100 g/L)(1 L/1000 mL)(5 mL of water in system)		
	=	0.5 g		

APPENDIX B

Example of pH Calculation

1. pH Calculation from pKa for microemulsion system containing pentanoic acid at 9.6% SDS.

pH of DI water = 5.62

Initial H^+ concentration = 2.4×10^{-6} Molar

Total amount of SDS in system = 9.6% = 0.7963 g

SDS/pentanoic acid = 40:60 by wt.

Amount of pentanoic acid in system = 1.1945 g = 2.3421 Molar

pK_a of pentanoic acid = 4.84

K_a of pentanoic acid = 1.445×10^{-5}

Assume y molar of pentanoic acid dissociate:

$K_a = 1.445 \times 10^{-5} = (y)(2.4 \times 10^{-6} + y)/(2.3421 - y)$

By solving the above equation,

$y = 5.8091 \times 10^{-3}$ Molar

$[H+] = 2.4 \times 10^{-6} + 5.8091 \times 10^{-3} = 5.8115 \times 10^{-3}$

pH of microemulsion = $-\log(5.8115 \times 10^{-3})$ = 2.24

2. pH Calculation from pKa and solubility of fatty acid in water for microemulsion system containing pentanoic acid at 9.6% SDS.

pH of DI water = 5.62

Initial H^+ concentration = 2.4×10^{-6} Molar

Amount of SDS in system = 9.6% = 0.7963 g

SDS/pentanoic acid = 40:60 by wt.

Total amount of pentanoic acid in system = 1.1945 g = 2.3421 Molar

Concentration of pentanoic acid in water = 3.63×10^{-1} Molar

pK_a of pentanoic acid = 4.84

K_a of pentanoic acid = 1.445×10^{-5}

Assume y molar of pentanoic acid dissociate:

$K_a = 1.445 \times 10^{-5} = (y)(2.4 \times 10^{-6} + y)/(3.63 \times 10^{-1} - y)$

By solving the above equation,

$y = 2.281 \times 10^{-3}$ Molar

$[H^+] = 2.4 \times 10^{-6} + 2.281 \times 10^{-3} = 2.283 \times 10^{-3}$

pH of microemulsion $= -\log(2.283 \times 10^{-3}) = 2.64$

APPENDIX C

Experimental Data from Conductivity Measurement

Table C-1 Conductivity of microemulsion containing propanoic acid.

SDS (%)	NaCl (g/l)	Conductivity		SDS (%)	NaCl (g/l)	Conductivity	
		Peak area	mS/cm			Peak area	mS/cm
21.6	120	2537.13	97.84	13.2	170	3198.36	101.31
	130	2680.32	104.52		180	3160.98	100.25
	140	3305.45	104.33		185	4289.4	132.08
	150	3489.86	109.53		200	3660.66	114.35
	170	3547.39	111.15		210	3220.59	101.93
	180	3596.55	112.54		215	2255.45	85.06
	185	3424.66	107.69		220	2204.69	82.81
	190	3278.48	103.57	7.2	190	4063.3	125.70
	200	2153.63	80.56		200	3615.51	113.07
18	160	3876.4	120.43		210	5430.5	164.27
	170	2885.52	114.31		220	5773.49	173.94
	181	2846	112.41		230	2010.39	74.33
	182	2742.78	107.47		245	1554.07	55.30
	183	2761.29	108.35		250	1589.34	56.73
	184	2743.4	107.50				
	200	2739.74	107.33				

Table C-2 Conductivity of microemulsion containing butanoic acid.

SDS (%)	NaCl (g/l)	Conductivity		SDS (%)	NaCl (g/l)	Conductivity	
		Peak area	mS/cm			Peak area	mS/cm
21.6	0	1057.13	36.00	10.8	60	1619.40	57.95
	1	1058.90	36.07		70	1579.04	56.31
	2	1060.32	36.12		80	1422.87	50.06
	3	1091.03	37.27		85	1445.39	50.95
	4	1102.49	37.70		90	1188.77	40.97
	5	1129.78	38.73		100	1246.60	43.19
	10	1226.00	42.40	4.8	100	3576.70	111.98
	20	1363.23	47.72		120	2501.50	96.20
	40	1629.52	58.36		130	2119.50	79.06
	60	1891.67	69.26		135	1716.07	61.91
	65	1922.46	70.56		145	1225.00	42.36
	70	1952.91	71.86		150	1154.65	39.67
	80	1963.85	72.33		155	897.70	30.13
	100	1990.01	73.45		160	935.55	31.51
15.6	40	1096.58	37.48		170	1007.42	34.15
	50	1410.46	49.57				
	55	1382.24	48.46				
	60	1452.45	51.23				
	65	1580.81	56.38				
	70	1589.11	56.72				
	80	1534.77	54.52				

Table C-3 Conductivity of microemulsion containing pentanoic acid.

SDS (%)	NaCl (g/l)	Conductivity		SDS (%)	NaCl (g/l)	Conductivity	
		Peak area	mS/cm			Peak area	mS/cm
13.2	10	732.65	24.20	6.0	50	1278.15	44.40
	20	817.39	27.22		60	1135.99	38.97
	30	838.00	27.96		65	1125.80	38.58
	40	1062.00	36.19		70	1024.86	34.80
	50	1191.75	41.09		80	1078.90	36.82
	70	966.35	32.64		85	656.82	21.54
	90	907.95	30.50		110	684.25	22.50
	110	893.50	29.97	3.6	40	1613.05	57.69
9.6	10	872.40	29.21		60	1935.11	71.10
	20	919.35	30.92		80	454.68	14.60
	30	952.60	32.13		100	483.56	15.57
	35	940.15	31.68		120	471.68	15.17
	55	1194.20	41.18				
	60	1114.35	38.15				
	80	953.45	32.16				

Table C-4 Conductivity of microemulsion containing hexanoic acid.

SDS (%)	NaCl (g/l)	Conductivity		SDS (%)	NaCl (g/l)	Conductivity	
		Peak area	mS/cm			Peak area	mS/cm
9.6	20	621.54	20.31	4.8	40	980.81	33.17
	25	659.49	21.63		45	697.67	22.97
	30	675.41	22.19		50	674.67	22.16
	40	809.65	26.95		60	734.37	24.26
	45	884.89	29.66		80	1033.6	35.13
	60	846.69	28.28		90	1139.1	39.09
	80	855.72	28.60		95	1322.5	46.12
	100	897.72	30.13		100	540.86	17.52
7.2	20	628.65	20.55		120	223.93	6.97
	25	609.73	19.90	2.4	40	1956.19	72.00
	30	564.16	18.32		50	1831.60	66.72
	50	840.57	28.06		55	1818.12	66.16
	55	721.52	23.81		60	473.34	15.23
	80	759.68	25.16		80	380.75	12.12
	100	751.59	24.87		85	112.07	3.39
					90	145.27	4.45
					100	149.16	4.57
					120	224.39	6.99

Table C-5 Conductivity of microemulsion containing heptanoic acid.

SDS (%)	NaCl (g/l)	Conductivity		SDS (%)	NaCl (g/l)	Conductivity	
		Peak area	mS/cm			Peak area	mS/cm
9.6	10	500.71	16.15	4.8	20	684.96	22.52
	20	513.24	16.58		25	557.65	18.10
	25	553.18	17.95		30	529.24	17.13
	30	662.44	21.73		40	556.12	18.05
	60	760.96	25.21		50	644.20	21.10
	80	644.35	21.10		55	502.87	16.23
7.2	10	497.56	16.05		60	480.79	15.48
	15	465.57	14.96		80	372.09	11.83
	20	549.89	17.83	2.4	20	1127.54	38.65
	30	573.25	18.64		40	1579.20	56.32
	35	658.07	21.58		45	1960.58	72.19
	40	629.53	20.58		50	751.73	24.88
	60	655.27	21.48		60	257.79	8.07
	80	583.94	19.01		65	124.80	3.80
					70	165.32	5.09
					80	163.83	5.04
					100	194.40	6.02
					120	220.74	6.87

APPENDIX D

Experimental Data from Interfacial Tension Measurement

Table D-1 Interfacial tension of microemulsion containing propanoic acid.

SDS (%)	NaCl (g/l)	Winsor type	Interfacial tension	
			γ_{mo}	γ_{mw}
15.6	150	I	4.12E-02	-
	170	I	2.11E-02	-
	180	I	2.02E-02	-
	185	III	2.76E-02	4.27E-03
	190	III	8.71E-03	1.38E-02
	200	III	4.08E-03	3.28E-02
	205	II	-	3.72E-02
	210	II	-	6.69E-02
	230	II	-	1.16E-01
13.2	170	I	1.00E-02	-
	180	I	7.08E-03	-
	185	III	5.62E-03	2.34E-03
	200	III	3.24E-03	4.07E-03
	210	III	1.91E-03	6.46E-03
	215	II	-	7.94E-03
	220	II	-	1.41E-02
10.2	180	I	1.10E-02	-
	185	I	4.17E-03	-
	190	III	2.57E-03	6.76E-04
	210	III	6.76E-04	1.82E-03
	230	III	-	2.75E-03
	235	III	-	3.55E-03
	240	II	-	4.37E-03
	270	II	-	3.55E-03
7.2	190	I	7.59E-03	-
	195	III	3.39E-03	-
	210	III	2.09E-03	5.25E-04
	220	III	1.32E-03	8.32E-04
	230	III	2.95E-04	1.02E-03
	240	III	-	9.33E-04
	245	II	-	1.62E-03
	250	II	-	4.07E-03

Table D-2 Interfacial tension of microemulsion containing butanoic acid.

SDS (%)	NaCl (g/l)	Winsor type	Interfacial tension	
			γ_{mo}	γ_{mw}
10.8	60	I	1.74E-02	-
	70	I	8.13E-03	-
	75	I	6.46E-03	-
	80	III	5.01E-03	3.55E-03
	85	III	3.24E-03	4.27E-03
	90	II	-	5.98E-03
	100	II	-	6.46E-03
7.8	60	I	1.62E-02	-
	80	I	6.76E-03	-
	100	I	3.09E-03	-
	105	III	2.69E-03	1.66E-03
	110	III	2.51E-03	2.04E-03
	115	III	1.95E-03	2.69E-03
	120	II	-	3.47E-03
	140	II	-	4.47E-03
4.8	100	I	2.97E-02	-
	120	I	5.75E-03	-
	130	I	3.09E-03	-
	135	III	2.04E-03	-
	140	III	1.58E-03	1.45E-03
	145	III	1.29E-03	1.95E-03
	150	III	-	2.40E-03
	155	II	-	3.09E-02

Table D-3 Interfacial tension of microemulsion containing pentanoic acid.

SDS (%)	NaCl (g/l)	Winsor type	Interfacial tension	
			γ_{mo}	γ_{mw}
4.8	50	I	7.95E-02	-
	70	I	7.46E-02	-
	75	III	7.00E-02	5.95E-02
	80	III	6.40E-02	6.22E-02
	90	II	-	7.47E-02
	110	II	-	1.06E-01
3.6	40	I	1.52E-01	-
	60	I	8.18E-02	-
	70	III	5.62E-02	4.32E-02
	80	III	4.65E-02	6.87E-02
	90	III	-	7.50E-02
	100	II	-	6.87E-02

Table D-4 Interfacial tension of microemulsion containing hexanoic acid.

SDS (%)	NaCl (g/l)	Winsor type	Interfacial tension	
			γ_{mo}	γ_{mw}
3.6	40	I	7.89E-02	-
	50	I	1.35E-01	-
	55	I	1.56E-01	-
	60	III	7.41E-02	4.99E-02
	80	III	5.06E-02	9.12E-02
	100	III	3.78E-02	1.28E-01
	120	II	-	1.39E-01
	140	II	-	1.91E-01
	160	II	-	2.06E-01
2.4	40	I	2.19E-02	-
	50	I	1.95E-02	-
	55	I	1.38E-02	-
	60	III	5.37E-03	5.13E-03
	80	III	3.39E-03	1.35E-02
	85	II	-	2.88E-02
	90	II	-	6.25E-02
	100	II	-	1.73E-01
	120	II	-	2.00E-01

Table D-5 Interfacial tension of microemulsion containing heptanoic acid.

SDS (%)	NaCl (g/l)	Winsor type	Interfacial tension	
			γ_{mo}	γ_{mw}
3.6	20	I	2.24E-01	-
	40	I	1.91E-01	-
	45	III	1.92E-01	1.38E-02
	50	III	4.29E-02	3.63E-02
	60	II	-	1.20E-01
	80	II	-	1.38E-01
	100	II	-	1.62E-01
2.4	20	I	7.35E-02	-
	40	I	7.59E-02	-
	45	I	7.41E-02	-
	50	III	5.75E-02	3.98E-02
	60	III	3.98E-02	6.46E-02
	65	II	-	1.59E-01
	70	II	-	1.21E-01
	80	II	-	2.63E-01
	100	II	-	2.72E-01
	120	II	-	2.68E-01

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