

REFERENCES

- Akita, S. and Takeuchi, H. (1995) Cloud-point extraction of organic compounds from aqueous solutions with nonionic surfactant. Separation Science and Technology, 30(5), 833-846
- Claesson, P.M., Kjellander, R., Stenius, P., and Christenson, H.K. (1986) State of water and surfactant in lyotropic liquid crystals. Langmuir, 5, 384
- Clint, J.H. (1992). Surfactant Aggregation. Glasgow and London: Blakie.
- Corkill, J.M. and Goodman, J.F. (1969) The Interaction of nonionic surface active agents with water. Advance Colloid Interface Science, 2, 297.
- Frank, H.Q. and Willie, L.H. (1999) Surfactant-mediate cloud point extractions: An environmentally benign alternative separation approach. Industrial Engineering Chemical Resourcer, 38, 4150-4168.
- Friberg, S.E. and Lindman, B. (1992) Organized Solution Surfactants in Science and Technology Volume 44. New York: Marcel Dekker.
- Gu, T. and Galera-Gomez, P.A. (1999) The effect of alcohols and other polar organic additives on the cloud point of Triton x-114 in the water. Colloids and Surfaces, 147(3), 365-370.
- Hinze, W.L. and Pramauro, E. (1993) Critical reviews. Analytical Chemistry, 24(2), 133.
- Huibers, P.D.T., Shah, D.O., and Katritzky, A.R. (1997) Predicting surfactant cloud point from molecular structure. Journal of Colloid and Interface Science, 193, 132-136.
- Jing-Liang L. and Bing-Heng C. (2003) Equilibrium partition of polycyclic aromatic hydrocarbons in a cloud-point extraction process. Journal of Colloid and Interface Science, 263, 625-632.
- Kato, T., Taguchi, N., Terao, T., and Seimiya, T. (1995) Structure of networks formed in concentrated solutions of nonionic surfactant studied by the plused-gradient spin-echo method. Langmuir, 11(12), 4661-4664.
- Kimchuwani, W., Osuwan, S., Scamehorn, J.F., Harwell, J.H., and Haller, K.J. (2000) Use of a micellar-rich coacervate phase to extract trichloroethylene from water. Separation Science and Technology, 35(13), 1991-2002.

- Komaromy-Hiller, G., Calkins, N., and Wandruszka, R.V. (1995) Change in polarity and aggregation number upon clouding of a nonionic detergent: effect of ionic surfactants and sodium chloride. Langmuir, 12(4), 916-920.
- Laohacharoensombat, S. (2002) Cloud Point Extraction of Toluene from Wastewater using Nonionic Surfactants: Effect of Temperature and Surfactant Structure. M.S. Thesis, The Petroleum and Petrochemical College, Chulalongkorn University.
- Mackay, R.A. (1987). Nonionic Surfactants. Physical Chemistry Vol. 23 New York: Marcel Dekker.
- Materna, K. and Szymanowski, J. (2002) Separation of phenols from aqueous micellar solutions by cloud point extraction. Journal of Colloid and Interface Science, 255, 195-201.
- Quina, F.H. and Hinze, W.L. (1999) Surfactant-mediated cloud point extraction: an environmentally benign alternative separation approach. Industrial Engineering Chemical Resource, 38(11), 4150-4168.
- Rosen, M.J. (1989) Surfactants and Interfacial Phenomena. 2nd ed. New York: Wiley.
- Sakulwongyai, S., Trakultamupatam, P., Scamehorn, J.F., Osuwan, S., and Christian, S.D. (2000) Use of surfactant coacervate phase to extract chlorinated aliphatic compounds from water: extraction of chlorinated ethanes and quantitative comparison to solubilization in micelles. Langmuir, 16(22), 8226-8230.
- Scamehorn, J.F. and Harwell, J.H. (1989) Surfactant-Based Separation Processes. New York: Marcel Dekker.
- Trakultamupatam, P., Scamehorn, J.F., and Osuwan, S. (2002) Removal of volatile aromatic contaminants from wastewater by cloud point extraction. Separation Science and Technology, 37(6), 1291-1305.
- Wang, Z. Zhao, F., and Li, D. (2002) Determination of solubilization of phenol at coacervate phase of cloud point extraction. Colloid and Surface, 216, 207-214.

APPENDICES

Appendix A: Properties of Phenol and P-cresol after Extraction

Table A.1 Properties of phenol after extracted at 60°C and 0M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0471	35.967	1057.62	29.41	0.7880	1381.6929	1753.37	59.24	98.86
		35.904	1058.89	29.49	0.7381	1382.7034	1873.40	59.31	98.93
		36.013	1056.69	29.34	0.7213	1383.0431	1917.48	59.19	98.93
Average	0.0471	35.961	1057.73	29.41	0.7491	1382.4798	1848.09	59.25	98.91
TDA-6 (C ₁₃ EO ₆)	0.1690	39.755	302.14	7.60	1.1401	384.0064	336.83	60.71	98.56
		40.065	300.61	7.50	1.2033	383.6952	318.86	60.41	98.48
		39.882	301.51	7.56	1.1998	383.7129	319.83	60.59	98.48
Average	0.1690	39.901	301.42	7.55	1.1811	383.8048	325.17	60.57	98.51
TDA-8 (C ₁₃ EO ₈)	0.2337	36.475	240.20	6.59	3.6860	269.5868	73.14	66.76	95.71
		36.686	239.51	6.53	3.2298	271.0824	83.93	66.57	96.24
		36.701	239.46	6.52	3.1817	271.2403	85.25	66.56	96.30
Average	0.2337	36.621	239.72	6.55	3.3658	270.6365	80.77	66.63	96.08
TDA-9 (C ₁₃ EO ₉)	0.2388	32.118	246.70	7.68	2.4286	267.5925	110.18	70.67	97.19
		32.221	248.85	7.72	2.4039	267.9831	111.48	70.79	97.22
		32.041	253.05	7.90	2.4042	268.3694	111.62	71.25	97.22
Average	0.2388	32.127	249.53	7.77	2.4122	267.9817	111.10	70.90	97.21
TDA-11 (C ₁₃ EO ₁₁)	Cloud point is higher than operating temperature.								

Table A.2 Properties of phenol after extracted at 60°C and 0.4M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0300	37.147	1290.08	34.73	0.8397	1803.0456	2147.28	51.82	98.52
		36.806	1301.09	35.35	0.8701	1802.0634	2071.08	52.27	98.47
		36.824	1300.51	35.32	0.8746	1801.9180	2060.24	52.24	98.47
Average	0.0300	36.926	1297.23	35.13	0.8615	1802.3423	2092.87	52.11	98.48
TDA-6 (C ₁₃ EO ₆)	0.0785	35.053	541.37	15.44	1.0111	688.7367	681.17	56.81	98.31
		35.765	533.01	14.90	0.9996	688.8717	689.15	55.93	98.32
		35.115	540.65	15.40	1.0009	688.8560	688.21	56.73	98.32
Average	0.0785	35.311	538.35	15.25	1.0039	688.8215	686.18	56.49	98.32
TDA-8 (C ₁₃ EO ₈)	Phase separations still not reach equilibrium.								
TDA-9 (C ₁₃ EO ₉)	0.1408	27.701	366.20	13.22	1.2033	382.4901	317.88	68.42	98.12
		27.813	361.05	12.98	1.2078	382.8964	317.03	68.03	98.11
		27.746	357.70	12.89	1.2024	383.9577	319.34	67.88	98.13
Average	0.1408	27.753	361.65	13.03	1.2045	383.1147	318.08	68.11	98.12
TDA-11 (C ₁₃ EO ₁₁)	Cloud point is higher than operating temperature.								

Table A.3 Properties of phenol after extracted at 60°C and 0.8M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0272	32.214	1839.41	57.10	0.9593	2217.7000	2311.79	61.47	98.48
		32.119	1842.81	57.37	0.9592	2217.7028	2311.98	61.58	98.48
		31.818	1853.58	58.26	0.9608	2217.6469	2308.17	61.94	98.47
Average	0.0272	32.050	1845.27	57.58	0.9598	2217.6833	2310.65	61.66	98.47
TDA-6 (C ₁₃ EO ₆)	0.0517	33.655	955.69	28.40	0.9431	1166.4277	1236.81	60.76	98.54
		33.699	954.88	28.34	0.9499	1166.3036	1227.87	60.71	98.53
		33.671	955.40	28.37	0.9631	1166.0616	1210.79	60.74	98.51
Average	0.0517	33.675	955.32	28.37	0.9520	1166.2643	1225.16	60.74	98.53
TDA-8 (C ₁₃ EO ₈)	Phase separations still not reach equilibrium.								
TDA-9 (C ₁₃ EO ₉)	0.1640	24.852	369.32	14.86	1.0283	368.0647	357.92	74.45	98.60
		24.731	369.94	14.96	1.0463	367.9733	351.71	74.58	98.57
		24.710	370.05	14.98	1.0468	367.9704	351.51	74.60	98.57
Average	0.1640	24.764	369.77	14.93	1.0405	368.0028	353.71	74.54	98.58
TDA-11 (C ₁₃ EO ₁₁)	0.1865	24.746	333.15	13.46	2.8439	317.0786	111.49	75.53	96.24
		25.056	328.90	13.13	2.8342	316.1655	111.56	75.06	96.24
		25.067	319.50	12.75	2.8364	314.0776	110.73	74.51	96.21
Average	0.1865	24.956	327.18	13.11	2.8382	315.7739	111.26	75.03	96.23

Table A.3 Properties of phenol after extracted at 60°C and 0.8M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 1-9 (C ₁₁ EO ₉)	Cloud point is higher than operating temperature.								
L24-9 (C ₁₂₋₁₄ EO ₉)	0.2595	28.881	206.45	7.15	3.6690	191.0509	52.07	71.47	94.80
		29.013	194.70	6.71	3.6766	191.6083	52.11	70.16	94.81
		28.564	207.50	7.26	3.6883	191.3146	51.87	71.80	94.79
Average	0.2595	28.819	202.88	7.04	3.6780	191.3246	52.02	71.14	94.80
Neodol 25-9 (C _{12.5} EO ₉)	0.2576	26.624	211.45	7.94	1.5682	209.9736	133.90	73.37	97.89
		26.286	216.05	8.22	1.5766	210.0922	133.26	74.04	97.88
		26.281	212.50	8.09	1.5789	210.0996	133.07	73.72	97.88
Average	0.2576	26.397	213.33	8.08	1.5746	210.0551	133.41	73.71	97.89
TDA-9 (C ₁₃ EO ₉)	0.1640	24.852	369.32	14.86	1.0283	368.0647	357.92	74.45	98.60
		24.731	369.94	14.96	1.0463	367.9733	351.71	74.58	98.57
		24.710	370.05	14.98	1.0468	367.9704	351.51	74.60	98.57
Average	0.1640	24.764	369.77	14.93	1.0405	368.0028	353.71	74.54	98.58

Table A.4 Properties of phenol after extracted at 70°C and 0M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0541	38.895	1102.93	28.36	0.6934	1232.0401	1776.77	61.87	99.03
		38.738	1105.68	28.54	0.6988	1231.9465	1763.01	62.02	99.02
		38.220	1114.73	29.17	0.7027	1231.8777	1753.05	62.53	99.02
Average	0.0541	38.618	1107.78	28.69	0.6983	1231.9548	1764.28	62.14	99.02
TDA-6 (C ₁₃ EO ₆)	0.0741	38.804	817.13	21.06	0.8778	897.6758	1022.65	62.76	98.79
		38.592	819.78	21.24	0.8461	898.0712	1061.37	62.96	98.84
		38.767	817.59	21.09	0.8444	898.0924	1063.53	62.80	98.84
Average	0.0741	38.721	818.17	21.13	0.8561	897.9465	1049.19	62.84	98.82
TDA-8 (C ₁₃ EO ₈)	Phase separations still not reach equilibrium.								
TDA-9 (C ₁₃ EO ₉)	0.1537	35.445	429.55	12.12	1.0174	435.4515	427.98	68.77	98.73
		35.699	433.65	12.15	1.0166	432.9393	425.85	68.82	98.72
		35.858	433.10	12.08	1.0131	428.7243	423.17	68.69	98.72
Average	0.1537	35.667	432.10	12.11	1.0157	432.3717	425.67	68.76	98.72
TDA-11 (C ₁₃ EO ₁₁)	Cloud point is higher than operating temperature.								

Table A.5 Properties of phenol after extracted at 70°C and 0.4M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0291	36.701	1665.70	45.39	0.7505	2135.6897	2845.63	57.65	98.84
		36.803	1662.30	45.17	0.7488	2135.7462	2852.14	57.53	98.84
		37.072	1653.33	44.60	0.7526	2135.6198	2837.61	57.22	98.84
Average	0.0291	36.859	1660.45	45.05	0.7507	2135.6852	2845.13	57.46	98.84
TDA-6 (C ₁₃ EO ₆)	0.0601	36.292	832.09	22.93	0.8858	1032.6744	1165.87	59.46	98.68
		35.980	836.97	23.26	0.8769	1032.8134	1177.86	59.80	98.69
		36.304	831.90	22.91	0.9032	1032.4012	1143.02	59.44	98.69
Average	0.0601	36.192	833.65	23.03	0.8886	1032.6297	1162.25	59.57	98.69
TDA-8 (C ₁₃ EO ₈)	0.2564	32.677	233.34	7.14	1.3495	241.4294	178.91	71.12	98.40
		32.639	233.45	7.15	1.3473	241.4358	179.20	71.15	98.41
		32.606	233.54	7.16	1.3533	241.4183	178.39	71.18	98.40
Average	0.2564	32.641	233.44	7.15	1.3500	241.4278	178.83	71.15	98.40
NOTE: Phase separations of TDA-8 still not reach equilibrium.									
TDA-9 (C ₁₃ EO ₉)	0.1434	33.933	384.06	11.32	3.3132	419.0050	126.46	65.45	95.49
		33.927	384.10	11.32	3.3238	418.9420	126.04	65.45	95.47
		33.396	387.27	11.60	3.3091	419.0296	126.63	66.00	95.49
Average	0.1434	33.752	385.14	11.41	3.3154	418.9922	126.38	65.63	95.49
TDA-11 (C ₁₃ EO ₁₁)	0.1450	32.020	393.75	12.30	3.0878	411.6886	133.33	67.58	95.76
		31.765	393.30	12.38	3.0936	411.4263	132.99	67.73	95.75
		31.950	389.35	12.19				67.38	93.08
Average	0.1450	31.912	392.13	12.29	3.0907	411.5575	133.16	67.57	94.87

Table A.5 Properties of phenol after extracted at 70°C and 0.4M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 1-9 (C ₁₁ EO ₉)	Cloud point is higher than operating temperature.								
L24-9 (C ₁₂₋₁₄ EO ₉)	0.2341	35.352	296.70	8.39	1.1487	321.7125	280.07	44.06	98.85
		35.304	297.25	8.42	1.1536	321.4454	278.65	44.10	98.84
		35.094	297.10	8.47	1.1485	321.8447	280.24	44.17	98.85
Average	0.2341	35.250	297.02	8.43	1.1502	321.6675	279.65	44.11	98.84
Neodol 25-9 (C _{12.5} EO ₉)	0.2045	31.604	276.00	8.73	2.8677	294.0818	102.55	48.50	96.35
		31.907	270.35	8.47	3.6390	294.4783	80.92	48.04	95.41
		31.799	274.20	8.62	2.8622	293.8291	102.66	48.31	96.35
Average	0.2045	31.770	273.52	8.61	3.1230	294.1298	95.38	48.28	96.04
TDA-9 (C ₁₃ EO ₉)	0.1434	33.933	384.06	11.32	3.3132	419.0050	126.46	65.45	95.49
		33.927	384.10	11.32	3.3238	418.9420	126.04	65.45	95.47
		33.396	387.27	11.60	3.3091	419.0296	126.63	66.00	95.49
Average	0.1434	33.752	385.14	11.41	3.3154	418.9922	126.38	65.63	95.49

Table A.6 Properties of phenol after extracted at 70°C and 0.8M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0200	30.196	2644.69	87.58	0.6548	3533.7121	5396.48	64.09	99.10
		30.222	2643.41	87.47	0.6491	3533.9911	5444.16	64.06	99.11
		30.133	2647.78	87.87	0.6669	3533.1183	5297.69	64.16	99.08
Average	0.0200	30.184	2645.29	87.64	0.6570	3533.6072	5379.44	64.10	99.10
TDA-6 (C ₁₃ EO ₆)	0.0381	29.847	1407.65	47.16	0.6121	1851.2415	3024.17	65.16	99.17
		29.672	1412.06	47.59	0.6229	1850.9702	2971.50	65.36	99.16
		29.765	1409.72	47.36	0.6105	1851.2835	3032.50	65.26	99.18
Average	0.0381	29.761	1409.81	47.37	0.6152	1851.1651	3009.39	65.26	99.17
TDA-8 (C ₁₃ EO ₈)	0.1983	28.262	301.29	10.66	1.2263	354.1101	288.75	72.50	98.62
		28.304	301.12	10.64	1.2243	354.1185	289.25	72.46	98.62
		28.340	300.97	10.62	1.2335	354.0811	287.05	72.43	98.61
Average	0.1983	28.302	301.12	10.64	1.2280	354.1032	288.35	72.46	98.62
NOTE: Phase separations of TDA-8 still not reach equilibrium.									
TDA-9 (C ₁₃ EO ₉)	0.1126	26.637	521.70	19.59	0.8213	625.6392	761.73	71.31	98.98
		26.675	521.40	19.55	0.8191	625.6564	763.79	71.27	98.98
		26.509	522.71	19.72	0.8242	625.6162	759.01	71.45	98.97
Average	0.1126	26.607	521.93	19.62	0.8216	625.6373	761.51	71.35	98.98
TDA-11 (C ₁₃ EO ₁₁)	0.1690	21.288	375.40	17.63	2.9099	406.5816	139.72	78.20	96.60
		21.505	380.20	17.68	2.9049	407.0983	140.14	78.24	96.61
		21.454	391.25	18.24	2.9119	407.3381	139.89	78.76	96.60
Average	0.1690	21.416	382.28	17.85	2.9089	407.0060	139.92	78.40	96.60

Table A.6 Properties of phenol after extracted at 70°C and 0.4M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 1-9 (C ₁₁ EO ₉)	0.1234	29.973	390.35	13.02	1.4579	468.5973	321.42	64.71	97.84
		29.819	385.70	12.93	1.4588	468.7506	321.33	64.55	97.84
		29.491	387.20	13.13	1.4607	468.0346	320.42	64.90	97.83
Average	0.1234	29.761	387.75	13.03	1.4591	468.4608	321.06	64.72	97.84
NOTE: Phase separations of Neodol 1-9 still not reach equilibrium.									
L24-9 (C ₁₂₋₁₄ EO ₉)	0.0929	28.54	521.60	18.28	2.3898	566.8484	237.19	65.18	96.05
		28.947	516.80	17.85	2.3938	567.3907	237.03	64.65	96.04
		28.528	524.85	18.40	2.3867	567.1073	237.61	65.33	96.05
Average	0.0929	28.672	521.08	18.18	2.3901	567.1155	237.28	65.05	96.05
Neodol 25-9 (C _{12.5} EO ₉)	0.1095	27.435	403.00	14.69	0.7895	450.2496	570.33	64.36	98.59
		27.399	398.25	14.54	0.7906	450.0031	569.23	64.12	98.59
		27.560	394.85	14.33	0.7889	450.3949	570.89	63.79	98.60
Average	0.1095	27.465	398.70	14.52	0.7896	450.2159	570.15	64.09	98.59
TDA-9 (C ₁₃ EO ₉)	0.1126	26.637	521.70	19.59	0.8213	625.6392	761.73	71.31	98.98
		26.675	521.40	19.55	0.8191	625.6564	763.79	71.27	98.98
		26.509	522.71	19.72	0.8242	625.6162	759.01	71.45	98.97
Average	0.1126	26.607	521.93	19.62	0.8216	625.6373	761.51	71.35	98.98

Table A.7 Properties of phenol after extracted at 80°C and 0M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
L24-5 (C ₁₂₋₁₄ EO ₅)	0.1018	68.476	967.53	14.13	1.1394	781.6956	686.07	61.56	98.73
		70.228	952.07	13.56	1.1912	781.2381	655.83	60.58	98.67
Average	0.1018	69.352	959.80	13.84	1.1653	781.4669	670.95	61.07	98.70
L24-7 (C ₁₂₋₁₄ EO ₇)	0.1368	58.186	802.44	13.79	1.9383	576.9509	297.66	68.61	97.92
		57.164	808.89	14.15	1.9131	577.1100	301.67	69.16	97.95
		58.132	802.78	13.81	2.0151	576.4664	286.08	68.64	97.84
Average	0.1368	57.827	804.70	13.92	1.9555	576.8424	295.14	68.80	97.91
L24-7.1 (C ₁₂₋₁₄ EO _{7.1})	0.1385	57.249	799.15	13.96	2.3794	572.2982	240.52	69.18	97.48
		59.263	786.61	13.27	2.5557	559.7881	219.04	68.09	97.24
		59.167	787.20	13.30	2.4490	567.8414	231.86	68.14	97.39
Average	0.1385	58.560	790.99	13.51	2.4614	566.6426	230.47	68.47	97.37
L24-9 (C ₁₂₋₁₄ EO ₉)	0.1429	128.080	351.45	2.74	3.0513	446.8188	146.44	31.39	96.07
Average	0.1429	128.080	351.45	2.74	3.0513	446.8188	146.44	31.39	96.07
L24-12 (C ₁₂₋₁₄ EO ₁₂)	Cloud point is higher than operating temperature								

Table A.7 Properties of phenol after extracted at 80°C and 0M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0230	54.374	4646.81	85.46	0.5132	2526.0273	4922.35	66.80	99.14
		52.362	4732.28	90.38	0.4354	2529.3321	5809.56	68.03	99.27
		53.002	4705.09	88.77	0.5233	2525.5974	4826.34	67.64	99.27
Average	0.0230	53.246	4694.72	88.20	0.4906	2526.9856	5186.08	67.49	99.23
TDA-6 (C ₁₃ EO ₆)	0.0274	57.302	3805.40	66.41	0.6548	2115.4434	3230.70	65.17	98.91
		59.961	3711.02	61.89	0.8366	2108.9905	2520.96	63.55	98.61
		61.205	3666.86	59.91	0.7781	2111.0674	2713.20	62.80	98.61
Average	0.0274	59.489	3727.76	62.74	0.7565	2111.8337	2821.62	63.84	98.71
TDA-8 (C ₁₃ EO ₈)	Phase separations not occur at this condition.								
TDA-9 (C ₁₃ EO ₉)	0.1052	53.108	1077.65	20.29	0.6362	554.8501	872.18	70.46	99.03
		53.167	1046.60	19.69	0.6371	552.7830	867.60	69.83	99.03
		53.243	1040.65	19.55	0.6837	547.2574	800.45	69.67	98.95
Average	0.1052	53.173	1054.97	19.84	0.6523	551.6302	846.74	69.99	99.00
TDA-11 (C ₁₃ EO ₁₁)	0.1451	52.671	853.35	16.20	1.6064	335.2690	208.70	73.45	97.25
		52.053	828.65	15.92	1.5654	319.7519	204.26	72.99	97.20
		52.337	892.25	17.05	1.5459	336.3508	217.57	74.32	97.36
Average	0.1451	52.354	858.08	16.39	1.5726	330.4572	210.18	73.59	97.27

Table A.7 Properties of phenol after extracted at 80°C and 0M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 1-9 (C ₁₁ EO ₉)	Cloud point is equal to operating temperature.								
L24-9 (C ₁₂₋₁₄ EO ₉)	0.1429	128.08	351.45	2.74	2.6613	405.1085	152.22	31.39	96.21
Average	0.1429	128.080	351.45	2.74	2.6613	405.1085	152.22	31.39	96.21
Neodol 25-9 (C _{12.5} EO ₉)	0.1330	53.404	543.75	10.18	0.4705	199.0211	422.98	60.97	98.48
		52.447	514.60	9.81	0.4579	181.2589	395.85	60.08	98.38
		53.334	512.65	9.61	0.4573	178.8268	391.02	59.59	98.36
Average	0.1330	53.062	523.67	9.87	0.4619	186.3690	403.28	60.21	98.41
TDA-9 (C ₁₃ EO ₉)	0.1052	53.108	1077.65	20.29	0.5922	554.8501	937.00	70.46	99.10
		53.167	1046.60	19.69	0.5931	552.7830	932.05	69.83	99.10
		53.243	1040.65	19.55	0.6396	547.2574	855.68	69.67	99.02
Average	0.1052	53.173	1054.97	19.84	0.6083	551.6302	908.25	69.99	99.07

Table A.8 Properties of phenol after extracted at 80°C and 0.4M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0545	38.714	1078.09	27.85	0.8394	1555.4006	1852.95	63.17	99.04
		38.641	1079.36	27.93	0.8298	1555.5672	1874.61	63.24	99.05
		38.471	1082.31	28.13	0.8342	1555.4919	1864.76	63.40	99.05
Average	0.0545	38.609	1079.92	27.97	0.8345	1555.4866	1864.11	63.27	99.05
TDA-6 (C ₁₃ EO ₆)	0.0703	34.742	897.02	25.82	1.1282	1202.1928	1065.63	67.99	98.75
		34.826	895.91	25.73	1.1342	1202.1130	1059.89	67.91	98.75
		34.343	902.29	26.27	1.1182	1202.3241	1075.20	68.35	98.75
Average	0.0703	34.637	898.41	25.94	1.1269	1202.2100	1066.91	68.08	98.75
TDA-8 (C ₁₃ EO ₈)	0.0912	33.891	945.05	27.88	1.5516	1159.2935	747.16	73.66	98.68
		33.560	946.50	28.20	1.5535	1159.7147	746.52	73.88	98.68
		33.814	950.10	28.10	1.5266	1153.3379	755.51	73.81	98.70
Average	0.0912	33.755	947.22	28.06	1.5439	1157.4487	749.73	73.79	98.69
TDA-9 (C ₁₃ EO ₉)	0.1082	36.140	615.05	17.02	1.4115	863.3900	611.69	67.37	98.67
		36.239	607.05	16.75	1.4181	852.3397	601.03	67.02	98.65
		35.657	713.60	20.01	1.4260	853.1649	598.31	70.83	98.64
Average	0.1082	36.012	645.23	17.93	1.4185	856.2982	603.68	68.41	98.65
TDA-11 (C ₁₃ EO ₁₁)	0.1233	31.846	546.96	17.18	2.7894	674.1080	241.67	72.79	97.14
		31.774	547.48	17.23	2.7735	674.2210	243.09	72.85	97.16
		31.751	547.64	17.25	2.7942	674.0741	241.24	72.87	97.14
Average	0.1233	31.790	547.36	17.22	2.7857	674.1344	242.00	72.84	97.15

Table A.8 Properties of phenol after extracted at 80°C and 0.4M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
L12-8 (C ₉₋₁₁ EO ₈)	0.0917	35.498	600.35	16.91	2.4117	743.9171	308.46	63.06	96.89
		35.749	596.00	16.67	2.4273	741.4408	305.46	62.73	96.86
		35.501	602.10	16.96	2.5084	740.1816	295.08	63.55	96.75
Average	0.0917	35.583	599.48	16.85	2.4491	741.8465	303.00	63.11	96.83
DDA-8 (C ₁₂ EO ₈)	0.0602	33.972	715.75	21.07	2.9538	956.0917	323.68	57.44	95.40
		33.918	728.25	21.47	2.9620	956.6059	322.96	57.90	95.39
		34.098	718.45	21.07	2.9535	958.7948	324.63	57.44	95.41
Average	0.0602	33.996	720.82	21.20	2.9564	957.1641	323.76	57.59	95.40
TDA-8 (C ₁₃ EO ₈)	0.0912	33.891	945.05	27.88	1.5516	1159.2935	747.16	73.66	98.68
		33.56	946.50	28.20	1.5535	1159.7147	746.52	73.88	98.68
		33.814	950.10	28.10	1.5266	1153.3379	755.51	73.81	98.70
Average	0.0912	33.755	947.22	28.06	1.5439	1157.4487	749.73	73.79	98.69

Table A.8 Properties of phenol after extracted at 80°C and 0.4M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 1-9 (C ₁₁ EO ₉)	0.1352	33.718	489.58	14.52	2.2916	618.1087	269.73	71.58	97.68
		33.602	490.32	14.59	2.2981	618.0668	268.94	71.68	97.68
		33.488	491.05	14.66	2.3041	618.0287	268.23	71.78	97.67
Average	0.1352	33.603	490.32	14.59	2.2979	618.0681	268.97	71.68	97.68
L24-9 (C ₁₂₋₁₄ EO ₉)	0.1156	34.034	492.60	14.47	1.6186	691.5182	427.23	65.42	98.24
		33.671	482.05	14.32	1.6298	691.8070	424.49	65.17	98.23
		33.956	486.35	14.32	1.6350	694.3244	424.67	65.18	98.23
Average	0.1156	33.887	487.00	14.37	1.6278	692.5499	425.46	65.26	98.23
Neodol 25-9 (C _{12.5} EO ₉)	0.1150	32.91	411.55	12.51	1.0342	606.0239	585.98	61.90	98.70
		32.686	411.50	12.59	1.0336	608.8449	589.03	62.06	98.71
		32.658	410.75	12.58	1.0245	607.1796	592.68	62.03	98.72
Average	0.1150	32.751	411.27	12.56	1.0308	607.3494	589.23	61.99	98.71
TDA-9 (C ₁₃ EO ₉)	0.1082	36.140	615.05	17.02	1.4115	863.3900	611.69	67.37	98.67
		36.239	607.05	16.75	1.4181	852.3397	601.03	67.02	98.65
		35.657	713.60	20.01	1.4260	853.1649	598.31	70.83	98.64
Average	0.1082	36.012	645.23	17.93	1.4185	856.2982	603.68	68.41	98.65

Table A.9 Properties of phenol after extracted at 80°C and 0.8M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
L24-5 (C ₁₂₋₁₄ EO ₅)	0.0304	51.570	1886.04	36.57	0.5082	2632.7729	5180.45	49.79	99.29
	0.0202	52.143	1864.91	35.77	0.4187	2635.6558	6295.06	49.23	99.40
	0.0287	50.054	1941.95	38.80	0.6237	2627.8906	4213.46	51.27	99.11
Average	0.0264	51.256	1897.63	37.04	0.5169	2632.1064	5229.66	50.10	99.27
L24-7 (C ₁₂₋₁₄ EO ₇)	0.0507	49.328	998.24	20.24	0.9531	1293.9661	1357.63	53.31	98.71
	0.0536	49.222	1000.12	20.32	0.9799	1292.5117	1319.05	53.41	98.60
	0.056	47.767	1025.91	21.48	0.9889	1292.3432	1306.88	54.78	98.59
Average	0.0534	48.772	1008.09	20.68	0.9740	1292.9403	1327.86	53.83	98.63
L24-7.1 (C ₁₂₋₁₄ EO _{7.1})	0.0519	48.162	1029.97	21.39	0.6430	1314.2225	2043.89	54.38	99.13
	0.0509	47.948	1033.78	21.56	0.7698	1311.1789	1703.38	54.58	98.90
	0.0556	47.104	1048.92	22.27	0.6856	1312.7734	1914.88	55.38	99.02
Average	0.0528	47.738	1037.56	21.74	0.6994	1312.7249	1887.38	54.78	99.02
L24-9 (C ₁₂₋₁₄ EO ₉)	0.0622	46.008	914.05	19.87	1.1171	1108.5595	992.37	56.85	98.50
	0.0611	44.821	931.94	20.79	1.1912	1106.2508	928.68	57.97	98.30
	0.0633	44.314	939.59	21.20	1.0511	1108.5037	1054.64	58.44	98.50
Average	0.0622	45.048	928.53	20.62	1.1198	1107.7713	991.90	57.75	98.43
L24-12 (C ₁₂₋₁₄ EO ₁₂)	0.1835	45.404	338.77	7.46	2.7687	364.0333	131.48	63.05	96.78
	0.2010	44.128	344.35	7.80	2.2887	363.8438	158.98	64.08	96.73
	0.1738	44.479	342.82	7.71	2.8536	360.8081	126.44	63.80	95.92
Average	0.1861	44.670	341.98	7.66	2.6370	362.8951	138.97	63.64	96.48

Table A.9 Properties of phenol after extracted at 80°C and 0.8M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0330	51.276	1628.10	31.75	0.5946	2246.7239	3778.52	40.57	99.18
	0.0289	51.830	1610.73	31.08	0.5348	2248.0655	4203.75	50.31	99.24
Average	0.0310	51.553	1619.42	31.41	0.5647	2247.3947	3991.13	46.88	99.21
TDA-6 (C ₁₃ EO ₆)	0.0338	48.464	1556.36	32.11	0.6862	2027.4042	2954.34	53.19	99.05
	0.0353	48.073	1566.41	32.58	0.6834	2026.8020	2965.88	55.55	99.02
	0.0334							53.57	
Average	0.0342	48.269	1561.39	32.35	0.6848	2027.1031	2960.11	54.10	99.04
TDA-8 (C ₁₃ EO ₈)	0.0417	45.219	1340.28	29.64	0.9746	1632.7817	1675.40	56.69	98.67
	0.0430	44.226	1362.76	30.81	0.9049	1633.4540	1805.13	54.76	98.71
Average	0.0424	44.723	1351.52	30.23	0.9397	1633.1178	1740.27	56.36	98.69
TDA-9 (C ₁₃ EO ₉)	0.0561	43.328	1028.93	23.75	0.8638	1203.2320	1392.90	59.16	98.84
	0.0554	42.304	1045.71	24.72	0.7398	1204.5245	1628.08	60.13	98.94
	0.0611	42.843	1036.88	24.20				59.62	
Average	0.0575	42.825	1037.17	24.22	0.8018	1203.8782	1510.49	59.64	98.89
TDA-11 (C ₁₃ EO ₁₁)	0.0724	42.402	845.72	19.95	1.3327	959.0353	719.60	60.64	98.23
	0.0711	42.529	844.08	19.85	1.3550	957.3918	706.56	60.52	98.06
		41.906	852.14	20.33	1.4026	956.7282	682.12	61.10	98.00
Average	0.0718	42.279	847.31	20.04	1.3634	957.7184	702.76	60.75	98.10

Table A.9 Properties of phenol after extracted at 80°C and 0.8M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 91-5 (C ₉₋₁₁ EO ₅)	0.0342	49.829	1529.80	30.70	1.4212	2024.3939	1424.40	51.86	98.04
	0.0327	46.869	1614.16	34.44	1.3067	2026.3506	1550.72	54.72	98.13
	0.0347	45.512	1652.83	36.32	1.2578	2027.7932	1612.16	56.03	98.20
Average	0.0339	47.403	1598.93	33.82	1.3286	2026.1792	1529.09	54.20	98.12
Neodol 91-6 (C ₉₋₁₁ EO ₆)	0.0416	45.836	1350.99	29.47	1.4429	1653.4204	1145.87	56.07	98.02
	0.0412	45.048	1369.19	30.39	1.4745	1651.2177	1119.88	56.82	97.89
	0.0417	45.217	1365.29	30.19	1.3983	1653.0532	1182.19	56.66	98.00
Average	0.0415	45.367	1361.82	30.02	1.4386	1652.5637	1149.31	56.52	97.97
Neodol 91-8 (C ₉₋₁₁ EO ₈)	0.0601	43.418	958.98	22.09	1.6492	1107.6495	671.64	59.27	97.79
	0.0624	42.717	969.63	22.70	1.6401	1106.1465	674.42	59.92	97.66
	0.0630	44.245	946.43	21.39	1.6107	1106.6227	687.04	58.49	97.70
Average	0.0618	43.460	958.35	22.06	1.6333	1106.8062	677.70	59.23	97.72

Table A.9 Properties of phenol after extracted at 80°C and 0.8M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
L12-8 (C ₉₋₁₁ EO ₈)	0.0559	42.206	1036.94	24.57	1.9381	1173.3993	605.44	60.25	97.39
	0.0599	42.085	1038.90	24.69	1.8910	1172.2727	619.94	60.36	97.30
	0.0584	41.893	1042.01	24.87	1.9127	1171.8979	612.68	60.54	97.27
Average	0.0581	42.061	1039.28	24.71	1.9139	1172.5233	612.68	60.38	97.32
DDA-8 (C ₁₂ EO ₈)	0.0491	41.511	1230.31	29.64	1.6805	1390.2880	827.30	60.53	97.72
	0.0490	41.284	1234.70	29.91	1.7296	1387.6091	802.26	60.75	97.53
	0.0496	41.08	1238.64	30.15	1.7307	1387.5875	801.75	60.94	97.53
Average	0.0493	41.292	1234.55	29.90	1.7136	1388.4949	810.44	60.74	97.59
TDA-8 (C ₁₃ EO ₈)	0.0417	45.219	1340.28	29.64	0.9746	1632.7817	1675.40	56.69	98.67
	0.0430	44.226	1362.76	30.81	0.8398	1634.9938	1946.97	57.64	98.80
Average	0.0424	44.723	1351.52	30.23	0.9072	1633.8877	1811.19	57.17	98.73

Table A.9 Properties of phenol after extracted at 80°C and 0.8M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 1-9 (C ₁₁ EO ₉)	0.0697	40.740	894.63	21.96	1.1646	993.0288	852.66	62.09	98.45
	0.0692	39.529	910.87	23.04	1.1638	991.8760	852.27	63.21	98.34
		40.187	902.05	22.45	1.1632	991.8843	852.70	62.60	98.34
Average	0.0694	40.152	902.52	22.48	1.1639	992.2630	852.54	62.63	98.38
L24-9 (C ₁₂₋₁₄ EO ₉)	0.0622	46.008	914.05	19.87	1.1179	1108.5469	991.62	56.85	98.50
	0.0611	44.821	931.94	20.79	1.1921	1106.2365	927.98	57.97	98.30
	0.0633	44.314	939.59	21.20	1.0519	1108.4911	1053.84	58.44	98.50
Average	0.0622	45.048	928.53	20.62	1.1206	1107.7581	991.15	57.75	98.43
Neodol 25-9 (C _{12.5} EO ₉)	0.0674	40.608	923.10	22.73	1.1713	1023.8856	874.12	62.12	98.44
	0.0668	39.926	932.56	23.36	1.1304	1023.3231	905.31	62.76	98.39
	0.0677	40.842	919.86	22.52	1.1462	1023.0884	892.63	61.91	98.36
Average	0.0673	40.459	925.17	22.87	1.1493	1023.4323	890.69	62.26	98.40
TDA-9 (C ₁₃ EO ₉)	0.0561	43.328	1028.93	23.75	0.8638	1203.2320	1392.90	59.16	98.84
	0.0554	42.304	1045.71	24.72	0.6144	1206.7064	1964.09	60.13	99.12
	0.0611	42.843	1036.88	24.20	0.7398	1204.5245	1628.08	59.62	98.94
Average	0.0575	42.825	1037.17	24.22	0.7394	1204.8210	1661.69	59.64	98.97

Table A.10 Properties of *p*-cresol after extracted at 60°C and 0M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0498	33.557	1762.60	52.53	0.7113	1363.7018	1917.20	73.35	99.01
		33.523	1763.24	52.60	0.6960	1363.9943	1959.84	73.38	99.04
		33.516	1763.38	52.61	0.6995	1363.9270	1949.86	73.38	99.03
Average	0.0498	33.532	1763.07	52.58	0.7023	1363.8744	1942.30	73.37	99.03
TDA-6 (C ₁₃ EO ₆)	0.1621	29.774	584.02	19.62	0.9813	417.8328	425.80	79.15	98.80
		29.870	583.52	19.54	1.0045	417.7130	415.85	79.08	98.77
		29.872	583.51	19.53	1.0076	417.6968	414.55	79.08	98.77
Average	0.1621	29.839	583.69	19.56	0.9978	417.7475	418.73	79.10	98.78
TDA-8 (C ₁₃ EO ₈)	0.2332	31.398	409.78	13.05	3.4894	282.5567	80.98	93.88	96.10
		31.572	409.21	12.96	3.5136	282.4768	80.39	93.85	96.07
		31.531	409.34	12.98	3.5166	282.4671	80.32	93.85	96.07
Average	0.2332	31.500	409.45	13.00	3.5065	282.5002	80.57	93.86	96.08
NOTE: Phase separations of TDA-8 still not reach equilibrium.									
TDA-9 (C ₁₃ EO ₉)	0.2351	25.627	425.00	16.58	1.9921	284.8331	142.98	83.60	97.78
		25.613	425.55	16.61	1.9972	285.4907	142.95	83.63	97.77
		25.601	426.00	16.64	2.0011	285.0944	142.47	83.65	97.77
Average	0.2351	25.614	425.52	16.61	1.9968	285.1394	142.80	83.62	97.77
TDA-11 (C ₁₃ EO ₁₁)	Cloud point is higher than operating temperature.								

Table A.11 Properties of *p*-cresol after extracted at 60°C and 0.4M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0391	28.594	1904.60	66.61	0.7081	1461.2997	2063.72	73.04	98.82
		28.59	1904.70	66.62	0.7225	1460.9460	2022.14	73.05	98.80
		28.596	1904.55	66.60	0.7098	1461.2567	2058.58	73.04	98.82
Average	0.0391	28.593	1904.62	66.61	0.7135	1461.1675	2048.14	73.04	98.81
TDA-6 (C ₁₃ EO ₆)	0.0874	29.575	857.50	28.99	1.0053	650.9351	647.54	73.52	98.41
		29.68	856.40	28.85	0.9815	651.1828	663.43	73.42	98.45
		29.653	856.68	28.89	1.0082	650.9046	645.63	73.45	98.41
Average	0.0874	29.636	856.86	28.91	0.9983	651.0075	652.20	73.46	98.42
TDA-8 (C ₁₃ EO ₈)	Phase separations still not reach equilibrium.								
TDA-9 (C ₁₃ EO ₉)	0.1454	19.176	586.95	30.61	0.9458	391.5904	414.02	83.89	98.60
		19.717	588.60	29.85	0.9391	393.1678	418.67	83.55	98.62
		19.106	586.85	30.72	0.9489	391.3271	412.41	83.93	98.59
Average	0.1454	19.333	587.47	30.39	0.9446	392.0284	415.04	83.79	98.60
TDA-11 (C ₁₃ EO ₁₁)	Cloud point is higher than operating temperature.								

Table A.12 Properties of *p*-cresol after extracted at 60°C and 0.8M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0329	23.687	2850.87	120.36	0.6728	1851.0966	2751.26	80.35	98.94
		23.765	2848.57	119.86	0.6663	1851.2891	2778.56	80.29	98.95
		23.708	2850.25	120.22	0.6787	1850.9230	2727.10	80.33	98.93
Average	0.0329	23.720	2849.89	120.15	0.6726	1851.1029	2752.31	80.32	98.94
TDA-6 (C ₁₃ EO ₆)	0.0573	24.232	1634.82	67.47	0.9515	1056.4602	1110.29	80.41	98.54
		24.218	1635.05	67.51	0.9537	1056.4237	1107.66	80.42	98.54
		24.383	1632.34	66.95	0.9367	1056.7031	1128.06	80.29	98.56
Average	0.0573	24.278	1634.07	67.31	0.9473	1056.5290	1115.34	80.37	98.55
TDA-8 (C ₁₃ EO ₈)	Phase separations still not reach equilibrium.								
TDA-9 (C ₁₃ EO ₉)	0.1703	17.345	600.08	34.60	1.8413	352.0137	191.17	87.66	97.52
		17.372	599.95	34.54	1.8292	352.0730	192.48	87.64	97.53
		17.398	599.82	34.48	1.8470	351.9860	190.57	87.62	97.51
Average	0.1703	17.372	599.95	34.54	1.8392	352.0242	191.41	87.64	97.52
TDA-11 (C ₁₃ EO ₁₁)	0.2091	17.641	490.80	27.82	2.7117	284.0529	104.75	88.03	96.52
		17.646	490.30	27.79	2.7163	283.1378	104.24	88.02	96.50
		17.547	491.70	28.02	2.7234	283.9366	104.26	88.11	96.50
Average	0.2091	17.611	490.93	27.88	2.7171	283.7091	104.42	88.05	96.50

Table A.12 Properties of *p*-cresol after extracted at 60°C and 0.8M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 1-9 (C ₁₁ EO ₉)	Cloud point is higher than operating temperature.								
L24-9 (C ₁₂₋₁₄ EO ₉)	0.2512	20.211	321.90	15.93	3.1702	189.9746	59.92	84.24	95.26
		20.215	323.85	16.02	3.1756	191.3518	60.26	84.31	95.29
		20.201	325.05	16.09	3.1782	189.7544	59.70	84.37	95.25
Average	0.2512	20.209	323.60	16.01	3.1747	190.3603	59.96	84.31	95.26
Neodol 25-9 (C _{12.5} EO ₉)	0.2710	17.667	358.25	20.28	1.3158	216.5559	164.58	88.29	98.39
		17.749	356.70	20.10	1.3185	217.8775	165.25	88.19	98.40
		17.702	356.75	20.15	1.3160	217.3592	165.16	88.22	98.40
Average	0.2710	17.706	357.23	20.18	1.3168	217.2642	165.00	88.23	98.40
TDA-9 (C ₁₃ EO ₉)	0.1703	17.345	520.69	30.02	1.8413	318.7037	173.08	86.04	97.26
		17.372	520.56	29.97	1.8292	318.7631	174.27	86.02	97.28
		17.398	520.44	29.91	1.8470	318.6760	172.54	85.99	97.25
Average	0.1703	17.372	520.56	29.97	1.8392	318.7143	173.29	86.02	97.27

Table A.13 Properties of *p*-cresol after extracted at 70°C and 0M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0297	29.821	2207.90	74.04	0.6957	1908.6858	2743.55	69.40	98.82
		29.887	2205.75	73.80	0.7141	1908.0855	2672.07	69.33	98.79
		29.908	2205.06	73.73	0.6842	1909.0604	2790.11	69.31	98.84
Average	0.0297	29.872	2206.24	73.86	0.6980	1908.6106	2735.24	69.35	98.82
TDA-6 (C ₁₃ EO ₆)	0.0682	32.142	947.83	29.49	0.9457	829.2516	876.89	68.32	98.46
		32.110	948.27	29.53	0.9473	829.2291	875.35	68.35	98.46
		32.119	948.15	29.52	0.9423	829.2978	880.09	68.34	98.47
Average	0.0682	32.124	948.08	29.51	0.9451	829.2595	877.44	68.34	98.47
TDA-8 (C ₁₃ EO ₈)	Phase separations still not reach equilibrium.								
TDA-9 (C ₁₃ EO ₉)	0.1294	25.728	558.65	21.71	1.1321	435.9231	385.07	76.35	98.28
		25.720	557.90	21.69	1.1355	435.6612	383.68	76.33	98.28
		25.653	556.40	21.69	1.1298	436.0598	385.95	76.33	98.29
Average	0.1294	25.700	557.65	21.70	1.1325	435.8814	384.90	76.34	98.28
TDA-11 (C ₁₃ EO ₁₁)	Cloud point is higher than operating temperature.								

Table A.14 Properties of *p*-cresol after extracted at 70°C and 0.4M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0170	26.931	5137.74	190.77	0.7386	3775.8332	5112.16	76.78	98.88
		26.868	5141.38	191.36	0.7451	3775.4583	5067.08	76.83	98.87
		26.875	5140.97	191.29	0.7342	3776.0866	5143.08	76.83	98.89
Average	0.0170	26.891	5140.03	191.14	0.7393	3775.7927	5107.44	76.81	98.88
TDA-6 (C ₁₃ EO ₆)	0.0546	22.529	1697.67	75.35	0.9354	1175.1264	1256.31	81.32	98.64
		22.628	1695.96	74.95	0.9292	1175.2338	1264.81	81.23	98.65
		22.593	1696.56	75.09	0.9380	1175.0807	1252.72	81.26	98.64
Average	0.0546	22.583	1696.73	75.13	0.9342	1175.1470	1257.95	81.27	98.64
TDA-8 (C ₁₃ EO ₈)	0.3547	20.905	283.38	13.56	1.3113	181.0247	138.05	88.17	98.70
		20.892	283.40	13.57	1.3076	181.0314	138.44	88.17	98.70
		20.928	283.34	13.54	1.3101	181.0269	138.18	88.15	98.70
Average	0.3547	20.908	283.38	13.55	1.3097	181.0277	138.23	88.16	98.70
NOTE: Phase separations of TDA-8 still not reach equilibrium.									
TDA-9 (C ₁₃ EO ₉)	0.1210	22.853	775.88	33.95	2.1182	522.0563	246.47	82.38	97.14
		22.640	777.43	34.34	2.1171	522.0643	246.60	82.54	97.14
		22.540	778.15	34.52	2.1202	522.0416	246.22	82.62	97.14
Average	0.1210	22.678	777.15	34.27	2.1185	522.0541	246.43	82.52	97.14
TDA-11 (C ₁₃ EO ₁₁)	0.1713	22.997	552.25	24.01	3.2098	346.6824	108.01	83.24	95.71
		22.930	556.50	24.27	3.2076	346.3307	107.97	83.38	95.71
		22.943	554.25	24.16	3.2099	346.9076	108.07	83.32	95.72
Average	0.1713	22.957	554.33	24.15	3.2091	346.6402	108.02	83.31	95.71

Table A.14 Properties of *p*-cresol after extracted at 70°C and 0.4M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 1-9 (C ₁₁ EO ₉)	Cloud point is higher than operating temperature.								
L24-9 (C ₁₂₋₁₄ EO ₉)	0.1739	23.714	406.55	17.14	1.9065	292.5861	153.47	78.31	97.00
		23.703	407.00	17.17	1.9057	292.9840	153.74	78.33	97.00
		23.702	408.70	17.24	1.9126	292.4483	152.90	78.40	96.99
Average	0.1739	23.706	407.42	17.19	1.9083	292.6728	153.37	78.35	97.00
Neodol 25-9 (C _{12.5} EO ₉)	0.2056	21.343	402.65	18.87	0.7658	299.9426	391.69	83.00	99.02
		21.38	400.40	18.73	0.7508	299.3064	398.65	82.90	99.04
		21.334	402.45	18.86	0.7558	300.0713	397.04	83.00	99.04
Average	0.2056	21.352	401.83	18.82	0.7574	299.7734	395.79	82.97	99.03
TDA-9 (C ₁₃ EO ₉)	0.1210	22.853	775.88	33.95	2.1182	522.0563	246.47	82.38	97.14
		22.640	777.43	34.34	2.1171	522.0643	246.60	82.54	97.14
		22.540	778.15	34.52	2.1202	522.0416	246.22	82.62	97.14
Average	0.1210	22.678	777.15	34.27	2.1185	522.0541	246.43	82.52	97.14

Table A.15 Properties of *p*-cresol after extracted at 70°C and 0.8M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0152	28.738	5742.03	199.81	0.3399	4257.9107	12526.05	75.37	99.48
		28.882	5732.70	198.49	0.3398	4257.9155	12528.83	75.25	99.48
		28.799	5738.08	199.25	0.3390	4257.9678	12558.78	75.32	99.48
Average	0.0152	28.806	5737.60	199.18	0.3396	4257.9313	12537.89	75.31	99.48
TDA-6 (C ₁₃ EO ₆)	0.0462	18.709	2115.08	113.05	0.8483	1390.3366	1639.06	84.56	98.76
		18.755	2114.13	112.72	0.8519	1390.2617	1631.99	84.52	98.75
		18.716	2114.93	113.00	0.8432	1390.4402	1648.94	84.56	98.76
Average	0.0462	18.727	2114.71	112.93	0.8478	1390.3461	1640.00	84.55	98.76
TDA-8 (C ₁₃ EO ₈)	0.1573	18.781	634.09	33.76	1.2238	406.9691	332.55	86.31	98.41
		18.800	633.99	33.72	1.2232	406.9724	332.72	86.29	98.42
		18.759	634.20	33.81	1.2241	406.9673	332.46	86.32	98.41
Average	0.1573	18.780	634.09	33.76	1.2237	406.9696	332.58	86.31	98.41
TDA-9 (C ₁₃ EO ₉)	0.2227	16.420	461.75	28.12	0.7733	289.4671	374.34	88.96	99.08
		16.494	461.50	27.98	0.7808	289.4410	370.72	88.91	99.07
		16.470	461.58	28.03	0.7734	289.4665	374.26	88.92	99.08
Average	0.2227	16.461	461.61	28.04	0.7758	289.4582	373.11	88.93	99.07
TDA-11 (C ₁₃ EO ₁₁)	0.1050	18.643	940.10	50.43	2.3067	600.7050	260.41	85.53	96.83
		18.694	944.00	50.50	2.3021	598.5219	259.99	85.55	96.82
		18.642	942.40	50.55	2.3136	601.2731	259.88	85.57	96.82
Average	0.1050	18.660	942.17	50.49	2.3075	600.1667	260.10	85.55	96.83

Table A.15 Properties of *p*-cresol after extracted at 70°C and 0.4M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 1-9 (C ₁₁ EO ₉)	0.1126	19.732	590.70	29.94	1.5627	380.1432	243.26	79.16	96.86
		19.757	591.70	29.95	1.5632	379.4531	242.74	79.17	96.86
		19.777	598.35	30.25	1.5620	378.9390	242.59	79.33	96.85
Average	0.1126	19.755	593.58	30.05	1.5627	379.5118	242.86	79.22	96.86
L24-9 (C ₁₂₋₁₄ EO ₉)	0.1162	18.766	840.70	44.80	1.3250	514.2581	388.12	85.49	98.08
		18.786	841.80	44.81	1.3271	513.4698	386.92	85.49	98.07
		18.791	841.05	44.76	1.3252	514.7508	388.43	85.47	98.08
Average	0.1162	18.781	841.18	44.79	1.3258	514.1595	387.82	85.48	98.08
Neodol 25-9 (C _{12.5} EO ₉)	0.1818	17.667	756.95	42.85	0.7345	482.5919	657.06	90.49	99.32
		17.749	753.10	42.43	0.7322	482.7518	659.28	90.41	99.32
		17.702	761.65	43.03	0.7364	482.8531	655.65	90.53	99.32
Average	0.1818	17.706	757.23	42.77	0.7344	482.7323	657.33	90.48	99.32
TDA-9 (C ₁₃ EO ₉)	0.2227	16.420	461.75	28.12	0.7733	289.4671	374.34	88.56	99.08
		16.494	461.50	27.98	0.7808	289.4410	370.72	88.91	99.07
		16.470	461.58	28.03	0.7734	289.4665	374.26	88.92	99.08
Average	0.2227	16.461	461.61	28.04	0.7758	289.4582	373.11	88.93	99.07

Table A.16 Properties of *p*-cresol after extracted at 80°C and 0M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0203	29.839	4368.31	146.40	0.4124	3427.7330	8311.85	75.21	99.42
		28.830	4417.01	153.21	0.4133	3427.6906	8294.05	76.05	99.42
		30.172	4352.24	144.25	0.4104	3427.8313	8353.33	74.93	99.43
Average	0.0203	29.614	4379.19	147.95	0.4120	3427.7516	8319.74	75.39	99.42
TDA-6 (C ₁₃ EO ₆)	0.0340	32.721	2538.28	77.57	0.5822	2041.8986	3506.94	73.19	99.20
		31.544	2571.72	81.53	0.5766	2042.0591	3541.57	74.16	99.20
		31.907	2561.41	80.28	0.5753	2042.0951	3549.45	73.86	99.21
Average	0.0340	32.057	2557.14	79.79	0.5781	2042.0176	3532.65	73.74	99.20
TDA-8 (C ₁₃ EO ₈)	Phase separations not occur at this condition.								
TDA-9 (C ₁₃ EO ₉)	0.1214	29.488	817.45	27.72	0.6022	650.3729	1079.98	79.30	99.29
		29.042	796.70	27.43	0.5942	650.5507	1094.76	79.13	99.30
		29.640	784.00		0.6082	651.6330	1071.42		99.28
Average	0.1214	29.390	799.38	27.58	0.6015	650.8522	1082.05	79.21	99.29
TDA-11 (C ₁₃ EO ₁₁)	0.1481	29.012	621.80	21.43	1.5615	428.5330	274.44	78.84	97.95
		29.108	636.80	21.88	1.5906	429.0766	269.76	79.18	97.91
		28.221	637.20	22.58	1.5545	427.7018	275.14	79.70	97.95
Average	0.1481	28.780	631.93	21.96	1.5689	428.4371	273.11	79.24	97.94

Table A.16 Properties of *p*-cresol after extracted at 80°C and 0M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 1-9 (C ₁₁ EO ₉)	Cloud point is equal to operating temperature.								
L24-9 (C ₁₂₋₁₄ EO ₉)	0.1565	106.861 106.510 106.839	177.46 179.35 177.58	1.66 1.68 1.66	2.7312	426.0909	156.01	23.55 23.81 23.57	96.66
Average	0.1565	106.737	178.13	1.67	2.7312	426.0909	156.01	23.64	96.66
Neodol 25-9 (C _{12.5} EO ₉)	0.1517	29.629 29.593 29.687	611.57 611.77 611.25	20.64 20.67 20.59	0.8720 0.8505 0.8580	456.4754 456.5954 456.5535	523.51 536.86 532.12	78.68 78.71 78.64	98.94 98.97 98.96
Average	0.1517	29.636	611.53	20.63	0.8601	456.5415	530.83	78.68	98.96
TDA-9 (C ₁₃ EO ₉)	0.1214	29.234 28.881 29.179	759.68 762.23 760.08	25.99 26.39 26.05	0.6022 0.5942 0.6082	650.3729 650.5507 651.6330	1079.98 1094.76 1071.42	78.22 78.48 78.26	99.29 99.30 99.28
Average	0.1214	29.098	760.66	26.14	0.6015	650.8522	1082.05	78.32	99.29

Table A.17 Properties of *p*-cresol after extracted at 80°C and 0.4M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0198	27.893	3817.29	136.85	0.7869	3157.5686	4012.48	73.39	98.78
		27.664	3828.66	138.40	0.7757	3158.1265	4071.35	73.61	98.80
		27.619	3830.89	138.70	0.7909	3157.3719	3992.12	73.65	98.77
Average	0.0198	27.725	3825.61	137.99	0.7845	3157.6890	4025.32	73.55	98.78
TDA-6 (C ₁₃ EO ₆)	0.0469	27.709	1628.69	58.78	1.1474	1323.8949	1153.86	74.30	98.27
		27.707	1628.73	58.78	1.1427	1323.9902	1158.67	74.30	98.28
		27.770	1627.45	58.60	1.1394	1324.0571	1162.07	74.24	98.28
Average	0.0469	27.729	1628.29	58.72	1.1431	1323.9807	1158.20	74.28	98.27
TDA-8 (C ₁₃ EO ₈)	0.0536	25.172	1471.55	58.46	1.7172	1164.8957	678.39	76.80	97.46
		25.163	1473.55	58.56	1.7200	1159.0885	673.89	76.83	97.45
		25.191	1473.85	58.51	1.6987	1163.3334	684.83	76.81	97.49
Average	0.0536	25.175	1472.98	58.51	1.7120	1162.4392	679.04	76.81	97.46
TDA-9 (C ₁₃ EO ₉)	0.0694	26.978	1119.25	41.49	2.0732	871.7065	420.47	75.57	96.91
		26.950	1119.62	41.54	2.0909	870.3785	416.27	75.59	96.88
		26.989	1119.10	41.47	2.0542	872.7471	424.87	75.56	96.94
Average	0.0694	26.972	1119.32	41.50	2.0727	871.6107	420.54	75.57	96.91
TDA-11 (C ₁₃ EO ₁₁)	0.1900	23.048	442.52	19.20	3.0013	319.5463	106.47	81.83	96.15
		23.078	442.39	19.17	2.9875	319.6051	106.98	81.81	96.17
		23.114	442.24	19.13	2.9508	319.7616	108.36	81.78	96.21
Average	0.1900	23.080	442.38	19.17	2.9799	319.6377	107.27	81.81	96.18

Table A.17 Properties of *p*-cresol after extracted at 80°C and 0.4M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
L12-8 (C ₉₋₁₁ EO ₈)	0.1751	26.94	459.80	17.07	3.3713	349.0081	103.52	78.37	95.65
		26.901	459.99	17.10	3.3558	349.0808	104.02	78.40	95.67
		26.939	459.81	17.07	3.3402	349.1545	104.53	78.37	95.69
Average	0.1751	26.927	459.86	17.08	3.3558	349.0811	104.03	78.38	95.67
DDA-8 (C ₁₂ EO ₈)	0.1493	24.413	549.25	22.50	2.0947	416.2051	198.69	79.79	97.21
		24.38	549.44	22.54	2.0894	416.2355	199.21	79.81	97.22
		24.406	549.29	22.51	2.2351	415.4051	185.86	79.79	97.02
Average	0.1493	24.400	549.32	22.51	2.1397	415.9485	194.59	79.80	97.15
TDA-8 (C ₁₃ EO ₈)	0.0536	25.172	1471.55	58.46	1.7172	1164.8957	678.39	76.80	97.46
		25.163	1473.55	58.56	1.7200	1159.0885	673.89	76.83	97.45
		25.191	1473.85	58.51	1.6987	1163.3334	684.83	76.81	97.49
Average	0.0536	25.175	1472.98	58.51	1.7120	1162.4392	679.04	76.81	97.46

Table A.17 Properties of *p*-cresol after extracted at 80°C and 0.4M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 1-9 (C ₁₁ EO ₉)	0.1830	25.617	519.69	20.29	2.8395	462.1052	162.74	81.96	97.33
		25.252	521.32	20.64	2.8461	462.0759	162.35	82.22	97.32
		25.607	519.74	20.30	2.8510	462.0542	162.07	81.97	97.32
Average	0.1830	25.492	520.25	20.41	2.8455	462.0784	162.39	82.05	97.32
L24-9 (C ₁₂₋₁₄ EO ₉)	0.1369	24.522	880.30	35.90	2.1799	769.8706	353.16	85.06	98.25
		24.548	880.00	35.85	2.1586	781.7069	362.13	85.04	98.29
		24.513	878.70	35.85	2.1566	770.1402	357.12	85.04	98.27
Average	0.1369	24.528	879.67	35.86	2.1650	773.9059	357.47	85.05	98.27
Neodol 25-9 (C _{12.5} EO ₉)	0.1315	22.581	729.80	32.32	1.0259	678.0087	660.87	83.03	99.01
		22.572	729.95	32.34	1.0252	682.1116	665.35	83.04	99.02
		22.607	732.55	32.40	1.0236	682.3624	666.65	83.07	99.02
Average	0.1315	22.587	730.77	32.35	1.0249	680.8276	664.29	83.04	99.02
TDA-9 (C ₁₃ EO ₉)	0.0694	26.978	943.00	34.95	2.0732	871.7065	420.47	72.27	96.91
		26.950	947.70	35.17	2.0909	870.3785	416.27	72.39	96.88
		26.989	949.05	35.16	2.0542	872.7471	424.87	72.39	96.94
Average	0.0694	26.972	946.58	35.09	2.0727	871.6107	420.54	72.35	96.91

Table A.18 Properties of *p*-cresol after extracted at 80°C and 0.8M NaCl

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
TDA-5 (C ₁₃ EO ₅)	0.0254	33.341	3996.29	119.86	0.9924	3108.0808	3132.03	75.75	98.79
		33.276	3998.79	120.17	1.0270	3106.7497	3025.02	75.80	98.75
		33.832	3977.45	117.56	1.0161	3107.1708	3058.08	75.39	98.76
Average	0.0254	33.483	3990.85	119.20	1.0118	3107.3338	3071.71	75.65	98.77
TDA-6 (C ₁₃ EO ₆)	0.0331	29.465	3187.62	108.18	1.2773	2377.7887	1861.53	78.74	98.45
		29.202	3195.30	109.42	1.2795	2377.7237	1858.25	78.93	98.45
		29.736	3179.70579	106.93	1.2647	2378.1569	1880.36	78.54	98.47
Average	0.0331	29.468	3187.54	108.18	1.2739	2377.8898	1866.72	78.74	98.46
TDA-8 (C ₁₃ EO ₈)	0.0470	15.278	2092.60	136.97	1.7736	1232.9208	695.14	86.78	97.17
		15.532	2039.00	131.28	1.5479	1415.4256	914.41	86.62	97.83
Average	0.0470	15.405	2065.80	134.12	1.6608	1324.1732	804.78	86.70	97.50
TDA-9 (C ₁₃ EO ₉)	0.0649	20.499	1793.55	87.49	1.3306	1249.3710	938.93	85.86	98.49
		20.471	1729.40	84.48	1.5414	1241.9897	805.77	85.43	98.24
Average	0.0649	20.485	1761.48	85.99	1.4360	1245.6804	872.35	85.65	98.37
TDA-11 (C ₁₃ EO ₁₁)	0.0929	25.232	1413.25	56.01	3.1968	986.2161	308.50	85.15	96.93
		25.961	1456.95	56.12	2.6002	971.8805	373.78	85.18	97.45
Average	0.0929	25.597	1435.10	56.07	2.8985	979.0483	341.14	85.17	97.19

Table A.18 Properties of *p*-cresol after extracted at 80°C and 0.8M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 91-5 (C ₉₋₁₁ EO ₅)	0.0180	23.754	3064.10	128.99	1.1216	2441.1846	2176.53	70.28	97.55
		22.724	3060.25	134.67	0.9567	2423.8092	2533.52	71.17	97.89
Average	0.0180	23.239	3062.18	131.83	1.0391	2432.4969	2355.02	70.73	97.72
Neodol 91-6 (C ₉₋₁₁ EO ₆)	0.0335	21.090	2502.50	118.66	1.2682	2164.4308	1706.66	80.44	98.34
		21.479	2526.90	117.65	1.0742	1982.1416	1845.29	80.31	98.46
Average	0.0335	21.285	2514.70	118.15	1.1712	2073.2862	1775.98	80.38	98.40
Neodol 91-8 (C ₉₋₁₁ EO ₈)	0.0505	24.034	1606.75	66.85	1.1535	1333.1991	1155.78	78.05	98.40
		23.245	1659.60	71.40	1.6869	1358.1761	805.12	79.15	97.72
Average	0.0505	23.640	1633.18	69.12	1.4202	1345.6876	980.45	78.60	98.06

Table A.18 Properties of *p*-cresol after extracted at 80°C and 0.8M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
L12-8 (C ₉₋₁₁ EO ₈)	0.0616	23.234	1921.25	82.69	0.9625	761.4428	791.13	84.44	98.11
		22.937	2023.50	88.22	0.9641	834.9476	866.08	85.70	98.27
Average	0.0616	23.086	1972.38	85.46	0.9633	798.1952	828.60	85.07	98.19
DDA-8 (C ₁₂ EO ₈)	0.0581	21.971	2182.20	99.32	1.0955	938.6153	856.78	85.97	98.14
		20.966	2044.10	97.50	1.0151	934.9684	921.07	85.74	98.27
Average	0.0581	21.469	2113.15	98.41	1.0553	936.7919	888.92	85.86	98.21
TDA-8 (C ₁₃ EO ₈)	0.0470	15.278	2092.60	136.97	1.7736	1232.9208	695.14	86.78	97.17
		15.532	2039.00	131.28	1.5479	1415.4256	914.41	86.62	97.83
Average	0.0470	15.405	2065.80	134.12	1.6608	1324.1732	804.78	86.70	97.50

Table A.18 Properties of *p*-cresol after extracted at 80°C and 0.8M NaCl (cont'd)

Sample	Coacervate Fractional Volume	[Phenol] _{dil} (ppm)	[Phenol] _{coa} (ppm)	Phenol Partition Ratio	[Surfactant] _{dil} (mM)	[Surfactant] _{coa} (mM)	Surfactant Partition Ratio	Phenol Extraction (%)	Surfactant Extraction (%)
Neodol 1-9 (C ₁₁ EO ₉)	0.1000	25.095	1825.45	72.74	0.4390	876.8903	1997.61	88.99	99.55
		21.488	1545.00	71.90	0.3548	688.5692	1940.96	88.88	99.54
Average	0.1000	23.292	1685.23	72.32	0.3969	782.7297	1969.29	88.94	99.55
L24-9 (C ₁₂₋₁₄ EO ₉)	0.0699	34.193	1277.90	37.37	1.7753	970.4552	546.65	77.84	98.09
		0.0847	33.683	1525.95	45.30	1.7235	1040.4487	603.67	77.11
Average	0.0773	33.938	1401.93	41.34	1.7494	1005.4520	575.16	77.48	98.17
Neodol 25-9 (C _{12.5} EO ₉)	0.0854	21.966	1211.70	55.16	0.6719	591.4166	880.26	83.74	98.80
		20.987	1278.60	60.92	0.5481	636.6724	1161.59	85.05	99.09
Average	0.0854	21.477	1245.15	58.04	0.6100	614.0445	1020.92	84.40	98.94
TDA-9 (C ₁₃ EO ₉)	0.0649	20.499	1793.55	87.49	1.3306	1249.3710	938.93	85.86	98.49
		20.471	1729.40	84.48	1.5414	1241.9897	805.77	85.43	98.24
Average	0.0649	20.485	1761.48	85.99	1.4360	1245.6804	872.35	85.65	98.37

CURRICULUM VITAE

Name: Ms. Sasisoam Singh

Date of Birth: January 2, 1981

Nationality: Thai

University Education:

1998-2002 Bachelor Degree of Chemical Engineering, Faculty of
Engineering, Kasetsart University, Bangkok, Thailand