

Separation of Phenyl Acetic Acid and 6-aminopenicillanic Acid Applying Aqueous Two-Phase Systems based on Copolymers and Salt

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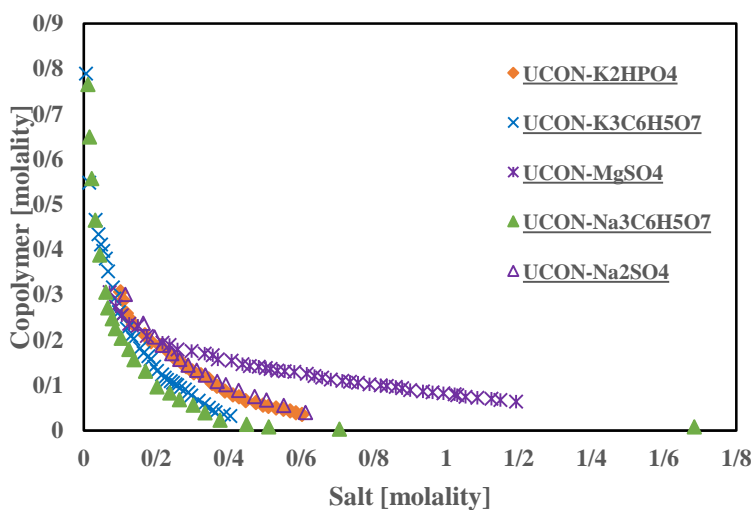
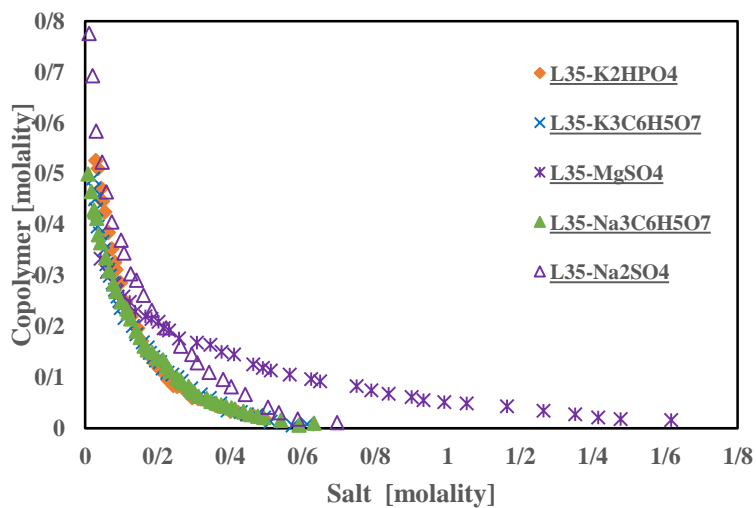
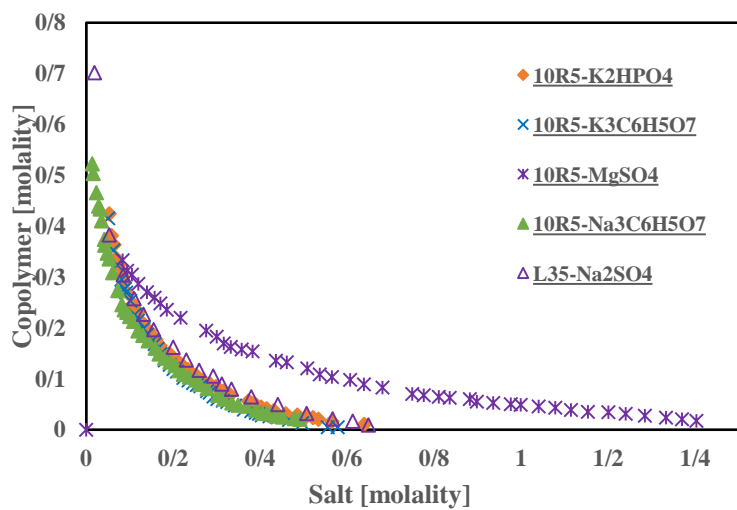


Figure S1. Experimental binodal curves determined for the ATPSs composed of different copolymers + salts in molality at 298 K

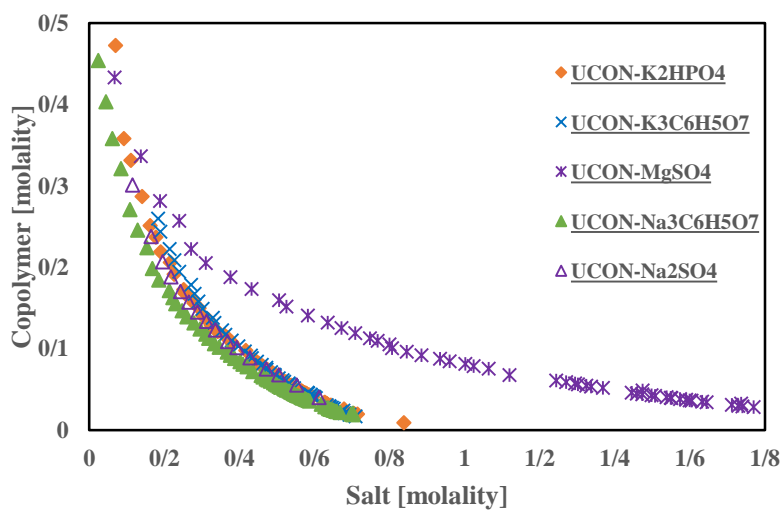
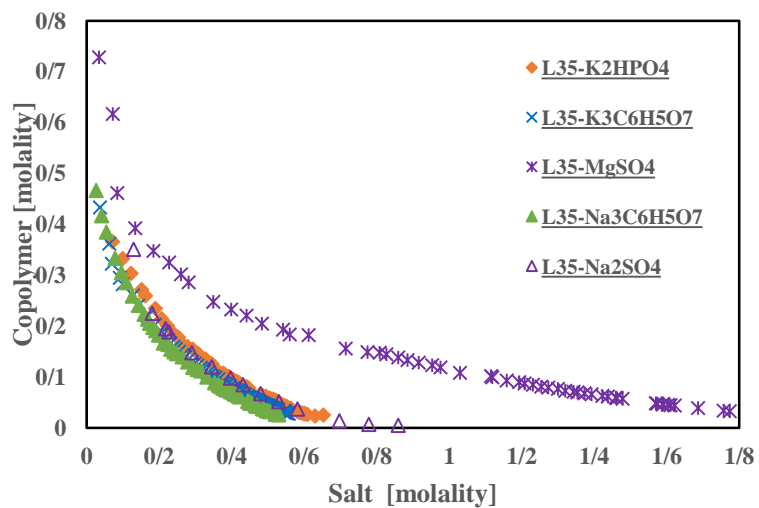
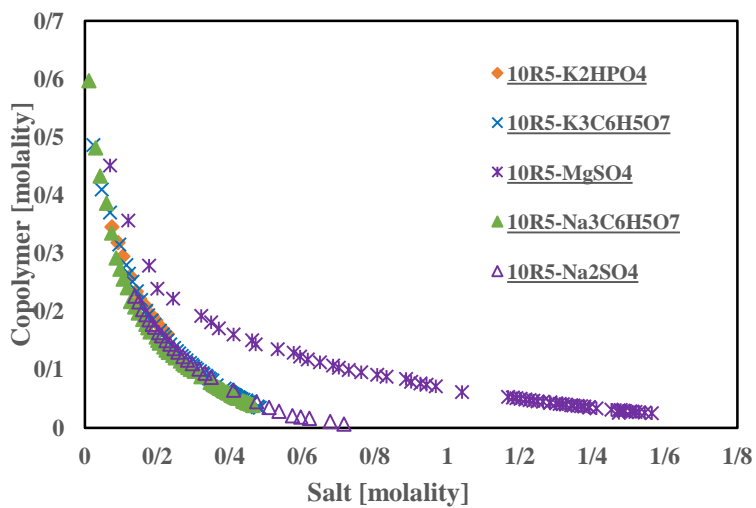


Figure S2. Experimental binodal curves determined for the ATPSs composed of different copolymers + salts in molality at 283 K

Table S1. Phase composition, tie-line data of the ATPS formed by R-Pluronic 10R5(1) + salt (2)

Copolymer	overall		Top phase		Bottom phase		TLL	STL
	100w ₁	100w ₂	100w ₁	100w ₂	100w ₁	100w ₂		
MgSO ₄	19.17	9.08	29.80	2.62	0.61	21.66	35.24	-1.56
	19.69	10.99	32.70	2.04	0.02	24.52	39.67	-1.45
	20.48	12.95	35.62	1.57	0.00	44.57	44.57	-1.33
Na ₃ C ₆ H ₅ O ₇	19.28	8.92	34.96	1.86	0.06	17.57	38.27	-2.22
	19.57	11.12	39.66	1.27	0.00	20.71	44.16	-2.04
	19.51	13.10	44.59	0.90	0.00	22.98	49.75	-2.02
Na ₂ SO ₄	19.98	10.98	48.91	0.53	0.00	18.20	52.01	-2.77
	20.03	9.01	46.69	0.72	0.00	15.74	47.15	-2.98
	24.97	9.00	47.82	0.57	0.00	18.20	50.97	-2.71
	14.97	8.98	42.21	0.85	0.02	13.44	44.03	-3.35
	20.01	7.01	40.94	0.93	0.03	12.80	42.60	-3.34
K ₂ HPO ₄	20.20	8.95	40.58	1.095	0.00	16.74	43.49	-2.59
	20.26	10.99	45.70	0.79	0.00	19.12	49.24	-2.49
	20.09	12.89	47.40	0.70	0.00	21.86	51.88	-2.25
K ₃ C ₆ H ₅ O ₇	20.80	8.91	34.84	2.82	0.14	18.10	37.59	-2.25
	20.51	10.95	40.04	2.11	0.03	20.22	43.92	-2.21
	19.85	12.93	41.59	1.95	0.00	22.96	46.59	-1.98

Table S2. Phase composition, tie-line data of the ATPS formed by Pluronic L35(1) + salt (2)

Copolymer	overall		Top phase		Bottom phase		TLL	STL
	100w ₁	100w ₂	100w ₁	100w ₂	100w ₁	100w ₂		
MgSO ₄	20.85	8.97	30.03	2.06	0.05	24.62	37.52	-1.33
	20.07	11.11	32.94	1.43	0.02	26.19	41.19	-1.33
	20.76	12.90	37.37	0.76	0.01	28.07	44.57	-1.37
Na ₃ C ₆ H ₅ O ₇	19.39	12.46	43.38	0.76	0.00	21.92	48.27	-2.05
	21.16	9.19	37.49	1.52	0.00	19.14	41.39	-2.13
	20.42	11.02	41.49	0.97	0.00	20.77	45.98	-2.09
Na ₂ SO ₄	25.01	9.00	50.62	0.60	0.00	17.19	53.27	-3.05
	20.02	7.00	38.21	1.62	0.01	12.93	38.84	-3.49
	19.40	10.97	52.08	0.52	0.00	17.44	54.76	-3.08
	20.02	9.01	47.72	0.78	0.00	14.93	49.78	-3.37
	14.97	8.97	40.16	1.41	0.00	13.52	41.94	-3.32
K ₂ HPO ₄	20.02	9.03	41.68	0.98	0.00	16.47	44.46	-2.69
	20.25	11.00	47.37	0.68	0.00	18.71	50.68	-2.63
	19.31	12.47	50.02	0.57	0.00	19.95	53.64	-2.58
K ₃ C ₆ H ₅ O ₇	19.93	9.01	29.83	3.20	0.04	20.68	34.53	-1.70
	20.21	11.04	37.69	1.79	0.02	21.72	42.63	-1.89
	19.90	12.66	41.78	1.27	1.27	23.03	47.10	-1.92

Table S3. Phase composition, tie-line data of the ATPS formed by UCON (1) + salt (2)

Copolymer	overall		Top phase		Bottom phase		TLL	STL
	100w ₁	100w ₂	100w ₁	100w ₂	100w ₁	100w ₂		
MgSO ₄	20.06	9.02	25.97	3.71	0.06	26.97	34.82	-1.11
	20.17	11.00	29.78	2.18	0.01	29.52	40.43	-1.09
	20.13	12.96	33.28	1.18	0.00	31.00	44.68	-1.12
Na ₃ C ₆ H ₅ O ₇	19.51	8.62	27.61	4.47	0.43	18.40	30.54	-1.95
	19.93	10.97	33.93	2.83	0.02	22.55	41.35	-1.72
	19.88	12.90	38.22	1.96	0.00	24.75	46.18	-1.68
Na ₂ SO ₄	25.01	9.00	43.88	1.05	0.00	19.54	47.62	-2.37
	14.95	8.99	35.08	1.84	0.15	14.26	37.07	-2.82
	20.02	7.00	34.81	1.87	0.20	13.88	36.63	-2.88
	19.96	10.98	42.68	1.14	0.00	19.62	46.51	-2.31
	20.18	9.04	40.48	1.31	0.01	16.72	43.30	-2.63
K ₂ HPO ₄	20.71	10.97	40.77	1.10	0.00	21.16	45.33	-2.03
	19.97	9.04	35.19	1.78	0.01	18.56	38.98	-2.10
	19.76	12.87	42.49	0.94	0.00	23.06	47.91	-1.92
K ₃ C ₆ H ₅ O ₇	19.94	10.96	31.25	3.46	0.00	24.19	37.50	-1.51
	20.23	12.95	35.58	2.61	0.00	26.59	42.90	-1.48
	20.03	15.06	40.30	1.56	0.00	28.10	48.10	-1.53

Table S4. Water ratio between top and bottom phases in copolymer-salt ATPSs

Salt	R-Pluronic 10R5	Pluronic L35	UCON
MgSO ₄	0.87	0.90	0.96
Na ₃ C ₆ H ₅ O ₇	0.77	0.75	0.84
Na ₂ SO ₄	0.62	0.52	0.69
K ₂ HPO ₄	0.70	0.69	0.77
K ₃ C ₆ H ₅ O ₇	0.76	0.85	0.84