



Research article

How NaCl addition destabilizes ionic liquid micellar suspension until phase separation

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Composition of the samples investigated and Chloride ions titration measurements

The linearity limit of the electrode is given at 1 M and checked to be indeed linear up to 1.1 M. The points with higher chloride contents were either ignored for the measurements or not taken into account in the discussion of the results.

Supplementary Table S1. Composition and chloride titration results for the series at 8.65 wt%

Sample	LI (wt%)	NaCl (wt%)	[Cl ⁻] _{tot} (M)	[Cl ⁻] _{free} (M)	[Cl ⁻] _{ads} (M)
1000	8.159	0.000	0.185	0.066	0.119
2000	8.114	0.653	0.294	0.173	0.120
3000	8.108	1.769	0.485	0.354	0.131
4000	7.982	2.646	0.642	0.512	0.130
5000	8.104	3.653	0.816	0.634	0.182
6000	7.919	4.788	1.014	0.821	0.193
7000	8.860	5.600	1.162	1.010	0.152
8000	8.912	6.531	1.329		
9000	8.730	7.424	1.504		

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Supplementary Table S2. Composition and chloride titration results for the series at 14.52 wt%

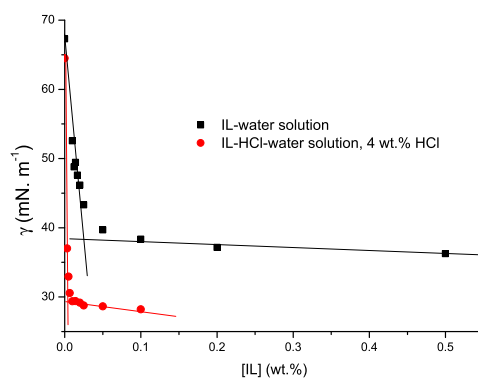
Sample	LI (wt%)	NaCl (wt%)	$[\text{Cl}^-]_{\text{tot}}$ (M)	$[\text{Cl}^-]_{\text{free}}$ (M)	$[\text{Cl}^-]_{\text{ads}}$ (M)
1000	14.517	0.000	0.330	0.150	0.179
2000	14.544	1.020	0.503	0.322	0.181
3000	14.505	2.153	0.692	0.509	0.184
4000	14.421	3.091	0.853	0.659	0.194
5000	14.362	3.937	1.008	0.761	0.248
6000	14.164	4.874	1.172	1.014	0.157
7000	14.103	5.895	1.349	1.171	0.178
8000	13.852	6.877	1.543	1.289	0.254

Supplementary Table S3. Composition and chloride titration results for the series at 20.65 wt%

Sample	LI (wt%)	NaCl (wt%)	$[\text{Cl}^-]_{\text{tot}}$ (M)	$[\text{Cl}^-]_{\text{free}}$ (M)	$[\text{Cl}^-]_{\text{ads}}$ (M)
1000	20.653	0.000	0.461	0.209	0.252
2000	20.297	1.348	0.689	0.454	0.235
3000	20.153	2.442	0.876	0.636	0.240
4000	19.963	3.375	1.041	0.790	0.251
5000	19.986	4.250	1.188	0.916	0.273
6000	19.704	5.249	1.373	1.088	0.286
7000	19.684	5.991	1.509	1.036	0.473

Surface tension measurement and critical concentration determination

The critical micellar concentration of the $[\text{P}_{4,4,4,14}]\text{Cl}$ in water and in acidic solution was estimated from its surface tension, measured by the pending drop method. Data are presented in the Figure S1.

**Supplementary Figure S1.** Surface tension measured for aqueous ionic liquid solutions, and for acidic (4 wt%) solutions.