Supplementary Data

Characterization of Systems of Thiophene and Benzene with Ionic Liquids

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Figures

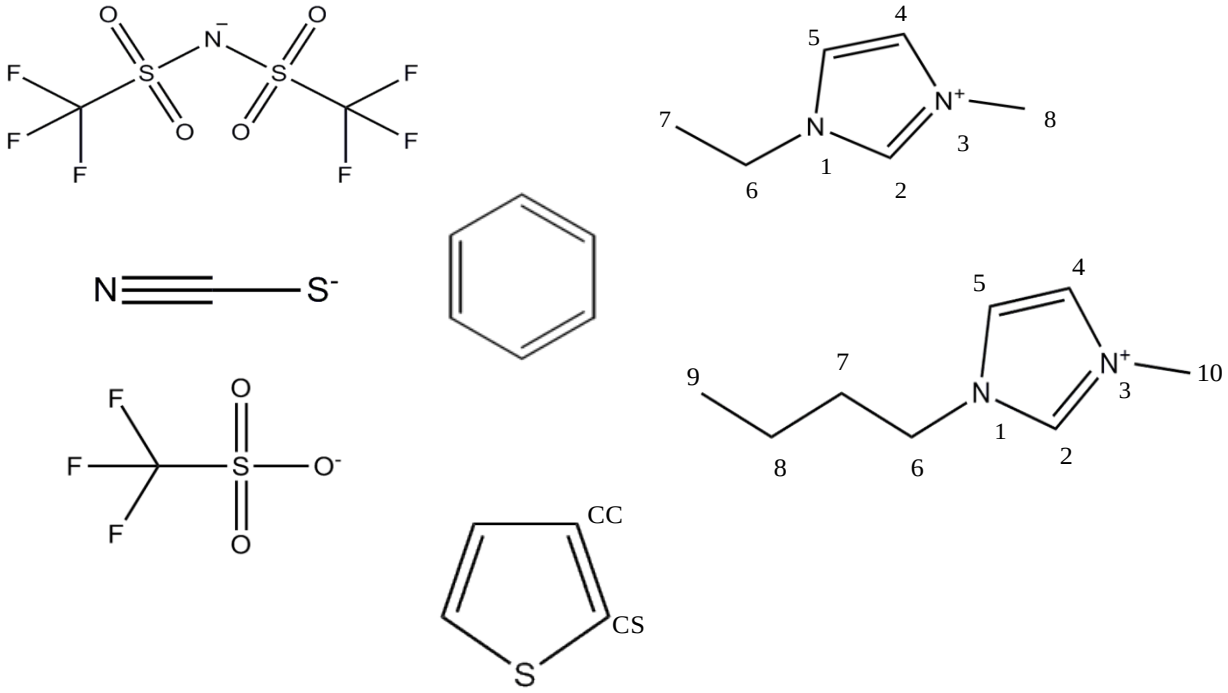

Figure S.1. Chemical structure of the aromatic compounds and of the cations and anions of the ILs studied in this work, and corresponding atom labeling.

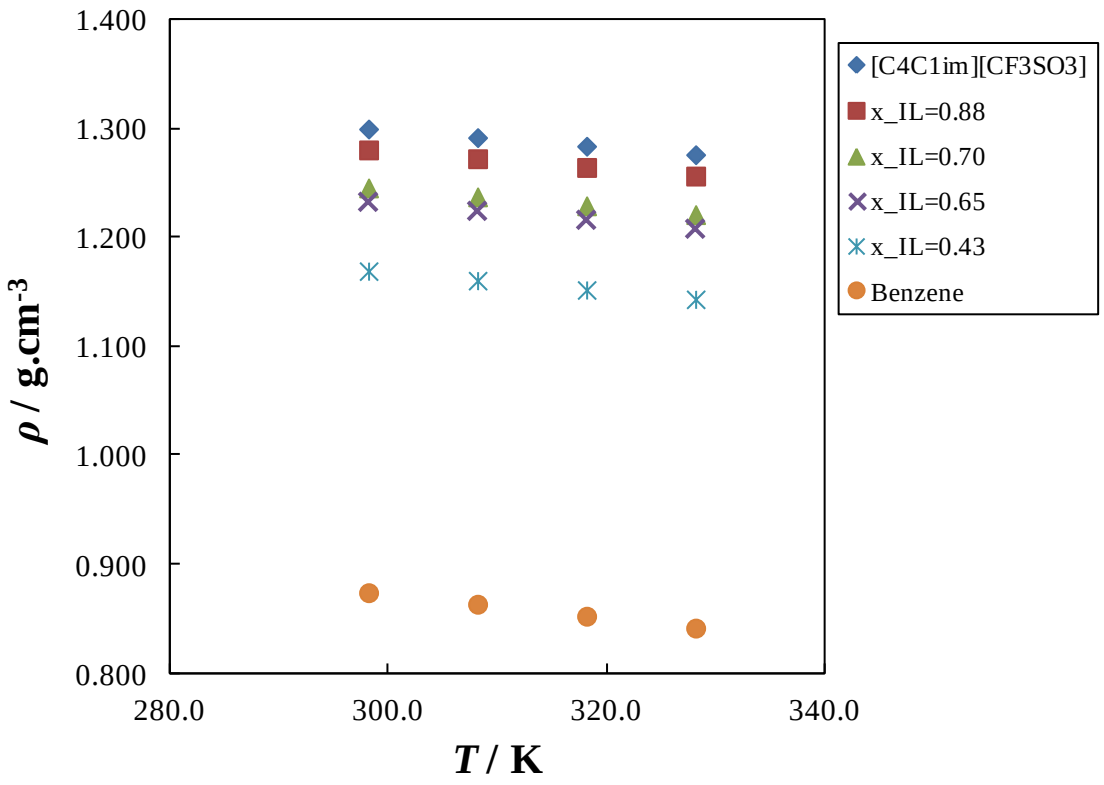

Figure S.2. Density as a function of temperature, for different mole fraction of $[C_4C_1im][CF_3SO_3]$ in binary mixtures with benzene.

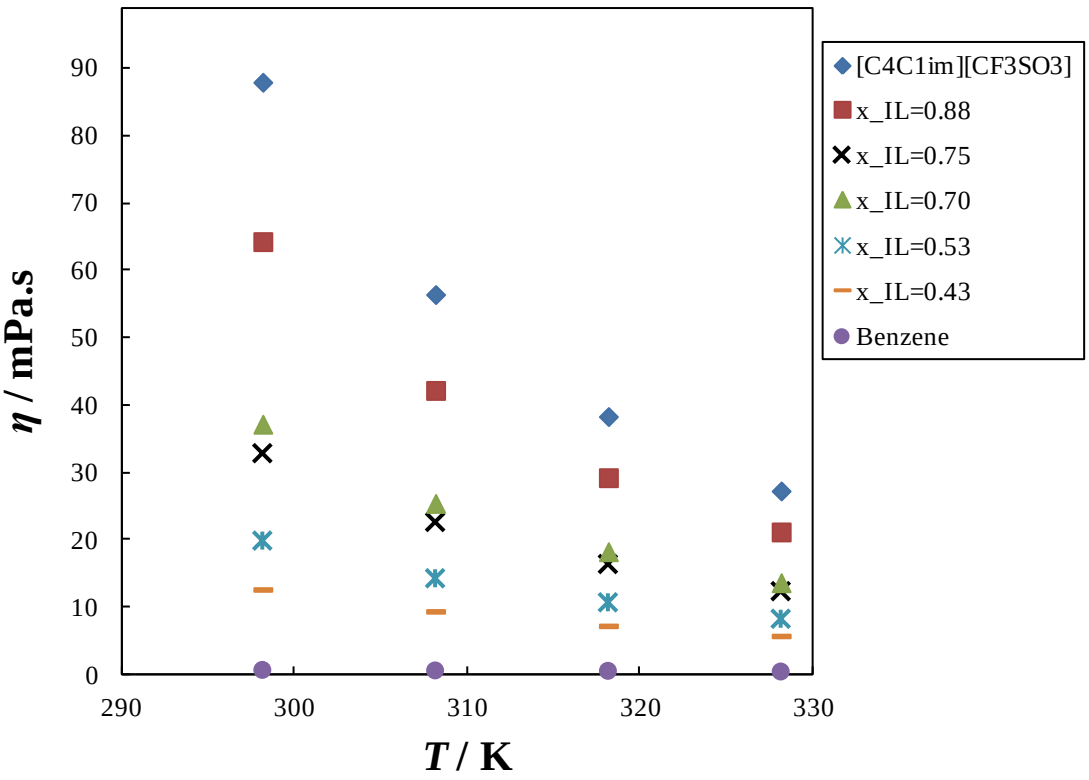

Figure S.3. Viscosity as a function of temperature, for different mole fraction of $[C_4C_1im][CF_3SO_3]$ in the binary mixture with benzene.

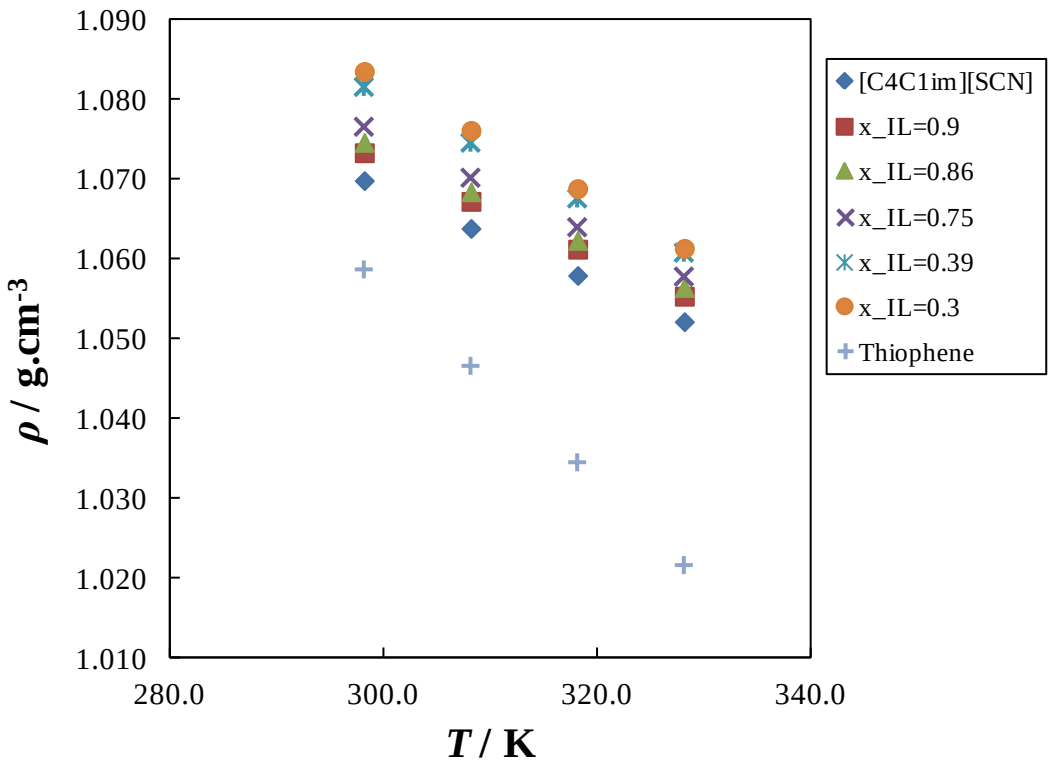

Figure S.4. Density as a function of temperature, for different mole fraction of [C_4C_1im][SCN] in binary mixtures with thiophene.

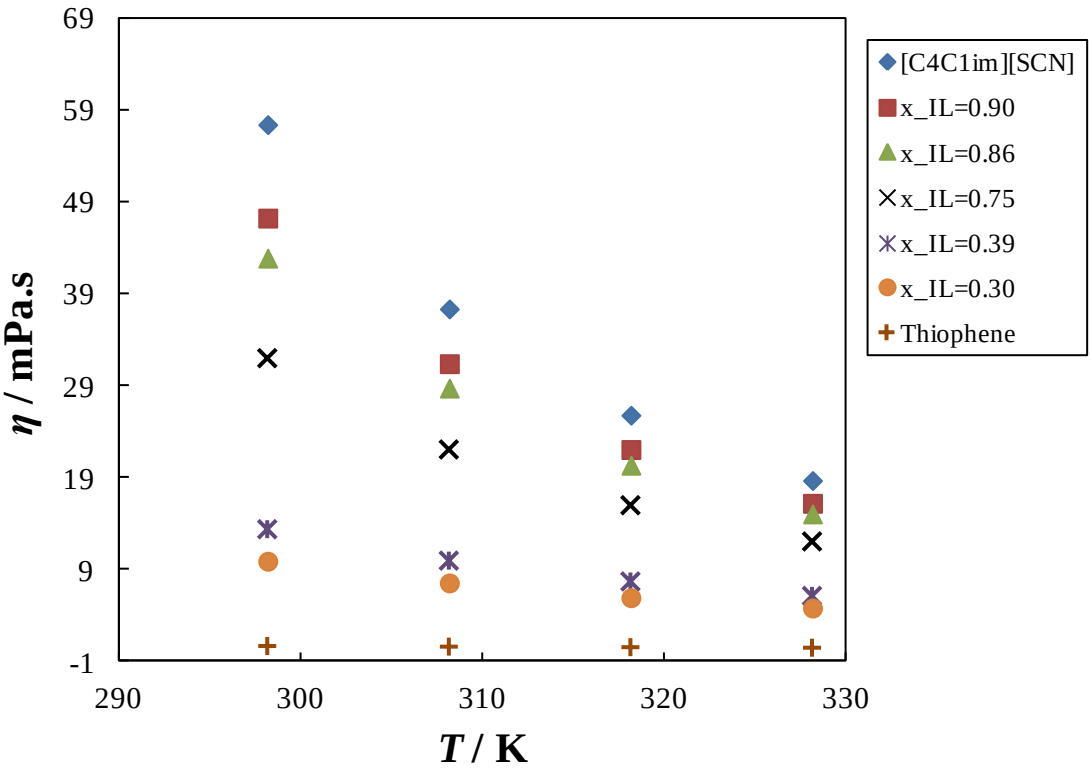

Figure S.5. Viscosity as a function of temperature, for different mole fraction of $[C_4C_1im][SCN]$ in binary mixtures with thiophene.

Tables

Table S.1. Experimental LLE in the ([C_4C_1im][NTf_2]+thiophene) binary system

T / (K)	x_{IL}
272.2	0.511
288.0	0.500
290.6	0.496
300.3	0.490
303.4	0.487
336.5	0.471

Table S.2. Excess molar volumes obtained for the different systems of ILs and thiophene/benzene, at different temperatures.

[C_4C_1im][SCN] + Thiophene

	T / K			
x_{IL}	298.15	308.15	318.15	328.15
	V^E / $cm^3.mol^{-1}$			
1.000	0.000	0.000	0.000	0.000
0.897	-0.691	-0.691	-0.732	-0.782
0.857	-0.920	-0.920	-0.968	-1.044
0.754	-1.260	-1.260	-1.348	-1.443
0.390	-1.998	-1.998	-2.192	-2.449
0.299	-2.184	-2.184	-2.404	-2.651
0.000	0.000	0.000	0.000	0.000

[C_4C_1im][NTf_2] + Thiophene

	T / K			
x_{IL}	298.15	308.15	318.15	328.15
	V^E / $cm^3.mol^{-1}$			
1.000	0.000	0.000	0.000	0.000
0.911	-0.333	-0.340	-0.367	-0.382
0.724	-0.631	-0.655	-0.716	-0.783
0.664	-0.842	-0.886	-0.949	-1.041
0.439	-3.653	-3.773	-3.923	-4.097
0.230	-5.015	-5.185	-5.363	-5.597
0.000	0.000	0.000	0.000	0.000

[C_4C_1im][SCN] + Benzene

	T / K			
x_{IL}	298.15	308.15	318.15	328.15
	V^E / $cm^3.mol^{-1}$			
1.0000	0.000	0.000	0.000	0.000
0.7666	-0.927	-1.023	-1.120	-1.220
0.7420	-1.021	-1.116	-1.212	-1.329
0.6081	-1.578	-1.720	-1.860	-2.035
0.4906	-1.814	-1.955	-2.142	-2.352
0.0000	0.000	0.000	0.000	0.000

[C_4C_1im][CF_3SO_3] + Benzene

	T / K			
x_{IL}	298.15	308.15	318.15	328.15
	V^E / $cm^3.mol^{-1}$			
1.000	0.000	0.000	0.000	0.000
0.878	-0.553	-0.572	-0.615	-0.659
0.696	-1.415	-1.499	-1.601	-1.706
0.647	-1.345	-1.432	-1.554	-1.665
0.427	-2.380	-2.512	-2.688	-2.859
0.000	0.000	0.000	0.000	0.000

[C_2C_1im][NTf_2] + Benzene

	T / K			
x_{IL}	298.15	308.15	318.15	328.15
	V^E / $cm^3.mol^{-1}$			
1.000	0.000	0.000	0.000	0.000
0.865	-0.543	-0.581	-0.613	-0.678
0.661	-1.338	-1.431	-1.548	-1.667
0.529	-1.822	-1.921	-2.026	-2.105
0.508	-1.990	-2.120	-2.273	-2.440
0.000	0.000	0.000	0.000	0.000

Table S.3. Viscosity deviations obtained for the different systems of ILs and thiophene/benzene, at different temperatures.

[C_4C_1im][SCN] + Thiophene				
	T / K			
x_{IL}	298.15	308.15	318.15	328.15
	$\Delta\ln(\eta)$			
1.000	0.000	0.000	0.000	0.000
0.897	0.267	0.256	0.246	0.238
0.857	0.349	0.333	0.321	0.312
0.754	0.517	0.496	0.479	0.466
0.390	1.269	1.210	1.161	1.126
0.299	1.380	1.315	1.263	1.228
0.000	0.000	0.000	0.000	0.000
[C_4C_1im][NTf_2] + Thiophene				
	T / K			
x_{IL}	298.15	308.15	318.15	328.15
	$\Delta\ln(\eta)$			
1.000	0.000	0.000	0.000	0.000
0.911	0.203	0.193	0.185	0.178
0.724	0.549	0.522	0.500	0.484
0.664	0.674	0.640	0.612	0.592
0.439	1.197	1.139	1.093	1.060
0.230	1.346	1.275	1.217	1.177
0.000	0.000	0.000	0.000	0.000
[C_4C_1im][SCN] + Benzene				
	T / K			
x_{IL}	298.15	308.15	318.15	328.15
	$\Delta\ln(\eta)$			
1.0000	0.000	0.000	0.000	0.000
0.7666	0.752	0.736	0.725	0.776
0.7420	0.680	0.659	0.641	0.683
0.6081	0.482	0.466	0.452	0.479
0.4906	0.440	0.425	0.413	0.437
0.0000	0.000	0.000	0.000	0.000

$[C_4C_1im][CF_3SO_3]$ + Benzene

	T / K			
x_{IL}	298.15	308.15	318.15	328.15
		$\Delta\ln(\eta)$		
1.000	0.000	0.000	0.000	0.000
0.878	0.914	0.884	0.858	0.914
0.696	0.836	0.805	0.779	0.816
0.647	0.772	0.735	0.704	0.729
0.533	0.655	0.625	0.599	0.621
0.427	0.296	0.281	0.269	0.276
0.000	0.000	0.000	0.000	0.000

$[C_2C_1im][NTf_2]$ + Benzene

	T / K			
x_{IL}	298.15	308.15	318.15	328.15
		$\Delta\ln(\eta)$		
1.000	0.000	0.000	0.000	0.000
0.865	0.812	0.784	0.784	0.757
0.661	0.820	0.785	0.785	0.756
0.529	0.610	0.590	0.590	0.569
0.508	0.268	0.262	0.262	0.256
0.000	0.000	0.000	0.000	0.000