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Supporting Information to:

Intriguing Transport Dynamics of Ethylammonium Nitrate – Acetonitrile Binary Mixtures Arising From Nano-inhomogeneity.

by

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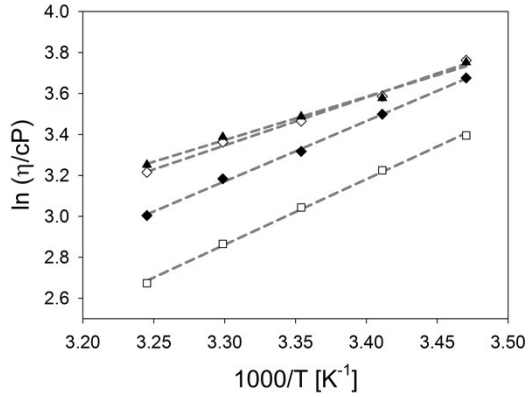

Figure S1. A zoomed view of Figure 3a (in the paper) on the mixtures with high ethylammonium nitrate mole fraction. χ_{EAN} = 0.8 (white squares); 0.9 (black diamonds) 0.98 (white diamonds); 1 (black triangles). The dashed lines indicate Arrhenius fits

$$\xi(\chi_1) = \chi_1(1-\chi_1)\sum a_n(1-2\chi_1)^n \qquad (1)$$

T [K]	a_1	a_2	a_3	a_4	R^2
288	-54.2657	10.3149	54.0205	-70.6676	0.9972
293	-44.0589	7.4008	42.8675	-56.1003	0.9971
298	-40.8657	7.6816	21.1473	-23.3207	0.9998
303	-36.7415	15.3961	7.6988	-25.4519	0.9966
308	-30.6600	15.6080	-3.4934	-15.7025	0.9954

Table S1. Fitting parameters for the Redlich-Kister function reported in Equation 1, relative to the excess viscosities. R^2 is the Coefficient of Determination

T [K]	a_1	a_2	a_3	a_4	R^2
288	7.0192	0.4130	1.7707	-5.8088	0.9979
293	7.1576	0.6571	1.7399	-5.6056	0.9980
298	6.5741	0.6370	1.2957	-2.5757	0.9979
303	6.9204	3.1862	-1.0988	-6.6923	0.9850
308	7.3046	4.8379	-2.8070	-7.7949	0.9770

Table S2. Fitting parameters for the Redlich-Kister function reported in Equation 1, relative to the excess Gibbs free energy of activation of the viscous flow. R^2 is the Coefficient of Determination

χ_{EAN}	κ at 278 K [mS cm^{-1}]	κ at 288 K [mS cm^{-1}]	κ at 298 K [mS cm^{-1}]	κ at 308 K [mS cm^{-1}]
0	0.0	0.0	0.0	0.0
0.1	11.2	13.2	16.9	23.8
0.2	22.9	28.5	39.6	51.9
0.3	25.2	34.1	47.1	62.8
0.5	28.5	37.7	50.0	63.0
0.7	20.0	27.1	37.1	49.4
0.9	15.9	22.7	31.4	42.1
1	--	--	22.6	30.7

Table S3. Measured conductivity (κ) for ethylammonium nitrate-acetonitrile systems at various temperatures and compositions

χ_{EAN}	**κ at 298 K [mS cm^{-1}]**	**κ at 298 K in literature (Ref. 28 of the manuscript) [mS cm^{-1}]**
0.1	14.0	12.7
0.2	23.4	23.2
0.3	32.7	31.4
0.5	37.6	36.0
0.7	33.7	31.2
0.9	25.3	25.3
1	22.5	22.4

Table S4. Comparison with literature data for conductivity (κ) of ethylammonium nitrate-acetonitrile systems at 298 K and various compositions. Values in this table are obtained using the procedure proposed in Ref. 28 of the manuscript.