SUPPORTING MATERIALS

Table S1. Experimental densities (ρ) of EAN and PAN at different temperatures as function of water content (w).

Ionic liquid	w (ppm)	ρ (g·cm^{-3})																		
		T (°C)																		
		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
EAN	1140	1.2232	1.2201	1.2169	1.2138	1.2106	1.2076	1.2045	1.2014	1.1984	1.1955	1.1925	1.1896	1.1867	1.1838	1.1809	1.1781	1.1753	1.1725	1.1696
	1320	1.2233	1.2201	1.2169	1.2138	1.2106	1.2075	1.2045	1.2014	1.1984	1.1954	1.1925	1.1896	1.1865	1.1836	1.1808	1.1780	1.1752	1.1724	1.1697
	1760	1.2231	1.2199	1.2168	1.2136	1.2105	1.2074	1.2043	1.2013	1.1983	1.1953	1.1923	1.1894	1.1865	1.1836	1.1808	1.1779	1.1751	1.1723	1.1694
	2110				1.2137	1.2105	1.2074	1.2044	1.2013	1.1983	1.1953	1.1924	1.1894	1.1865	1.1836	1.1808	1.1779	1.1751	1.1723	1.1695
	2120	1.2231	1.2199	1.2167																
	2490	1.2231	1.2199	1.2167	1.2136	1.2104	1.2073	1.2042	1.2012	1.1982	1.1952	1.1923	1.1893	1.1865	1.1837	1.1809	1.1780	1.1752	1.1723	1.1694
	2930	1.2230	1.2198	1.2166	1.2134	1.2103	1.2072	1.2041	1.2011	1.1981	1.1951	1.1921	1.1892	1.1863	1.1834	1.1807	1.1779	1.1750	1.1722	1.1693
	3660	1.2229	1.2197	1.2165	1.2134	1.2102	1.2071	1.2040	1.2010	1.1980	1.1950	1.1920	1.1891	1.1862	1.1833	1.1804	1.1776	1.1748	1.1719	1.1691
	4580	1.2228	1.2196	1.2164	1.2133	1.2101	1.2070	1.2040	1.2009	1.1979	1.1949	1.1920	1.1890	1.1861	1.1832	1.1803	1.1775	1.1747	1.1718	1.1689
	5290	1.2227	1.2195	1.2163	1.2132	1.2100	1.2069	1.2038	1.2008	1.1978	1.1948	1.1918	1.1889	1.1860	1.1831	1.1802	1.1774	1.1746	1.1717	1.1689
	11790	1.2217	1.2185	1.2153	1.2122	1.2090	1.2059	1.2028	1.1997	1.1967	1.1937	1.1907	1.1878	1.1848	1.1819	1.1790	1.1762	1.1733	1.1704	1.1675
	16070	1.2211	1.2179	1.2147	1.2115	1.2083	1.2052	1.2021	1.1990	1.1960	1.1929	1.1900	1.1870	1.1840	1.1811	1.1782	1.1753	1.1725	1.1696	1.1667
PAN	1300	1.1639	1.1607	1.1576	1.1546	1.1515	1.1485	1.1455	1.1425	1.1396	1.1366	1.1337	1.1308							
	1430	1.1638	1.1607	1.1576	1.1545	1.1514	1.1484	1.1454	1.1424	1.1394	1.1365	1.1336	1.1307	1.1278	1.1249	1.1220	1.1191	1.1163	1.1135	1.1105
	6240	1.1635	1.1603	1.1572	1.1541	1.1511	1.1480	1.1450	1.1420	1.1390	1.1360	1.1331	1.1302	1.1273	1.1244	1.1215	1.1186	1.1157	1.1128	1.1098
	9890	1.1632	1.1601	1.1570	1.1538	1.1508	1.1477	1.1447	1.1416	1.1387	1.1357	1.1327	1.1298	1.1269	1.1240	1.1211	1.1182	1.1153	1.1124	1.1094
	15460	1.1628	1.1597	1.1565	1.1534	1.1503	1.1472	1.1442	1.1411	1.1381	1.1351	1.1322	1.1292	1.1263	1.1234	1.1205	1.1176	1.1147	1.1117	1.1087
	20580	1.1626	1.1595	1.1563	1.1532	1.1501	1.1470	1.1440	1.1409	1.1379	1.1349	1.1319	1.1289	1.1259	1.1230	1.1200	1.1171	1.1142	1.1113	1.1084
	23990	1.1623	1.1591	1.1560	1.1528	1.1497	1.1466	1.1435	1.1405	1.1374	1.1344	1.1314	1.1284	1.1255	1.1225	1.1196	1.1167	1.1138	1.1109	1.1079
	29190	1.1620	1.1588	1.1556	1.1525	1.1493	1.1462	1.1431	1.1401	1.1370	1.1340	1.1309	1.1279	1.1250	1.1220	1.1190	1.1161	1.1131	1.1102	1.1073

Table S2. Experimental viscosities (η) of EAN and PAN at different temperatures as function of water content (w).

Ionic liquid	w (ppm)	η (mPa·s)																		
		T (°C)																		
		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
EAN	660	85.7	68.8	55.9	46.0	38.4	32.4	27.7	23.85											
	1480	84.5	67.5	54.9	45.2	37.8	31.9	27.3	23.53	20.48	17.96	15.87	14.12	12.64	11.38	10.30	9.36	8.55	7.84	7.22
	1680	83.8	67.4	54.8	45.2	37.8	31.9	27.3	23.54	20.48	17.96	15.87	14.12	12.64	11.37	10.29	9.36	8.55	7.84	7.22
	1760	83.8	67.4	54.8	45.2	37.7	31.9	27.3	23.52	20.47	17.95	15.86	14.11	12.63	11.37	10.29	9.35	8.54	7.84	7.22
	2110		66.6	54.1	44.7	37.4	31.6	27.0	23.31	20.29	17.80	15.74	14.00	12.54	11.29	10.22	9.29	8.48	7.78	7.17
	3660	80.6	64.6	52.6	43.4	36.3	30.8	26.3	22.72	19.80	17.38	15.38	13.69	12.26	11.05	10.01	9.10	8.32	7.64	7.03
	4580	78.8	63.5	51.8	42.8	35.8	30.3	25.9	22.41	19.54	17.16	15.19	13.53	12.12	10.93	9.89	9.01	8.23	7.56	6.97
	5290	78.0	62.7	51.1	42.3	35.4	30.0	25.7	22.24	19.40	17.05	15.08	13.44	12.05	10.86	9.84	8.96	8.19	7.52	6.93
	11790	67.6	54.7	44.8	37.3	31.4	26.7	22.95	19.91	17.42	15.36	13.64	12.19	10.96	9.90	8.99	8.21	7.52	6.92	6.39
	16070	61.9	50.2	41.3	34.4	29.1	24.82	21.40	18.61	16.32	14.42	12.83	11.49	10.34	9.36	8.52	7.79	7.15	6.58	6.08
PAN	370	200.5	153.1	119.2	94.4	76.1	62.1	51.4	43.1	36.4	31.2	26.9	23.39	20.50	18.09	16.05	14.34	12.88	11.63	10.54
	870	198.6	151.5	118.2	93.8	75.5	61.7	51.1	42.9	36.3	31.0	26.8	23.29	20.41	18.01	15.99	14.28	12.81	11.55	10.46
	1300	194.5	148.6	115.8	91.9	74.1	60.5	50.1	41.9	35.4	30.3	26.0	22.56							
	1430	193.1	147.5	114.9	91.1	73.4	60.0	49.7	41.7	35.3	30.2	26.1	22.75	19.97	17.65	15.70	14.05	12.64	11.43	10.38
	1600	191.9	146.6	114.2	90.6	73.0	59.7	49.5	41.5	35.2	30.1	26.0	22.65	19.88	17.58	15.64	13.99	12.59	11.39	10.35
	3890	179.1	137.3	107.3	85.4	69.0	56.5	46.9	39.4	33.5	28.7	24.86	21.70	19.08	16.89	15.04	13.48	12.14	11.01	10.01
	6240	167.3	128.7	100.9	80.4	65.2	53.6	44.6	37.5	31.9	27.4	23.76	20.76	18.28	16.21	14.47	12.98	11.70	10.60	9.65
	9890	150.3	116.2	91.5	73.3	59.6	49.1	41.0	34.6	29.6	25.5	22.14	19.41	17.13	15.23	13.62	12.25	11.07	10.05	9.17
	15460	130.7	101.7	80.5	64.8	53.0	43.9	36.8	31.2	26.7	23.12	20.16	17.71	15.67	13.96	12.52	11.28	10.22	9.30	8.50
	20580	115.1	90.0	71.6	57.9	47.6	39.6	33.3	28.4	24.37	21.14	18.48	16.28	14.46	12.91	11.60	10.48	9.51	8.67	7.94
	23990	106.1	83.2	66.5	53.9	44.4	37.0	31.3	26.7	22.96	19.96	17.48	15.44	13.73	12.27	11.04	9.99	9.08	8.29	7.59
	29190	93.1	73.4	59.0	48.1	39.7	33.3	28.2	24.14	20.87	18.19	15.98	14.16	12.61	11.31	10.21	9.25	8.42	7.71	7.08

Table S3. Experimental electrical conductivities (κ) of EAN and PAN at different temperatures as function of water content (w).

Ionic liquid	w (ppm)	κ (mS·cm^{-1})									
		T (°C)									
		5	15	25	35	45	55	65	75	85	95
EAN	580	10.70	15.24	20.6	27.2	33.9	41.2	48.4	56.3	64.9	73.1
	1020	10.70	15.27	20.7	27.4	34.3	41.6	49.3	57.0	65.3	74.2
	1320			20.9							
	1620	10.92	15.57	21.0	27.7	34.7	41.9	49.8	57.3	65.7	74.4
	1640	10.86	15.52	21.1	27.9	34.6	41.9	49.6	57.5	65.6	74.1
	2120			21.2							
	2530			21.3							
	2930			21.4							
	3660			21.7							
	4540	11.44	16.30	22.0	28.9	36.0	43.8	51.8	59.8	68.5	76.8
	5310	11.64	16.49	22.2	29.2	36.3	43.8	51.8	59.8	68.1	76.8
	11750	12.87	18.08	24.3	31.6	39.0	47.0	55.4	64.0	72.7	81.7
	16170	13.78	19.25	26.1	33.3	41.1	49.4	57.9	66.7	75.5	84.4
PAN	310	3.54	5.58	8.19	11.39	15.18	19.55	24.4	29.9	35.5	41.7
	1630	3.69	5.77	8.42	11.76	15.54	19.93	24.8	30.5	36.1	42.2
	3350	3.86	6.02	8.78	12.18	16.11	20.6	25.5	31.4	37.0	43.0
	5050	4.01	6.23	9.04	12.51	16.52	21.0	26.5	32.0	37.6	43.9
	6540	4.19	6.48	9.38	12.87	16.99	21.7	27.3	32.6	38.4	44.7
	10570	4.59	7.05	10.11	13.90	18.20	23.0	28.8	34.4	40.3	46.7
	16430	5.17	7.83	11.12	15.09	19.64	24.7	30.5	36.5	42.4	48.8
	21340	5.80	8.68	12.23	16.47	21.2	27.0	32.6	38.9	44.8	51.3

Table S4. Experimental refractive indexes (n_D) and surface tensions (σ) of EAN and PAN at 25 °C as function of water content (w).

Ionic liquid	w (ppm)	n_D	w (ppm)	σ (mN·m^{-1})
		25 °C		
EAN	660	1.45394	740	47.76
	1140	1.45388	900	47.77
	1480	1.45383	1680	47.79
	1740	1.45383	1740	47.80
	2110	1.45381	1760	47.79
	2120	1.45384	1940	47.79
	2530	1.45382	2110	47.78
	2930	1.45380	3660	47.83
	4580	1.45367	5290	47.87
	5290	1.45360	16070	48.08
	11790	1.45290	16550	48.08
	16070	1.45236		
PAN	370	1.45535	370	38.70
	870	1.45523	1300	38.76
	1600	1.45519	1430	38.73
	1620	1.45511	1600	38.77
	2560	1.45508	1620	38.77
	3560	1.45500	2560	38.79
	3890	1.45489	3560	38.78
	5080	1.45486	3890	38.82
	6240	1.45468	5080	38.81
	6550	1.45472	6240	38.84
	9890	1.45426	9890	38.93
	10820	1.45425	13230	39.03
	15460	1.45368	15460	39.04
	16730	1.45351	20580	39.16
	20580	1.45313	22370	39.22
	22370	1.45288	29190	39.36
	23990	1.45283		
	29190	1.45220		

Table S5 compiles in detail the properties studied at any temperature in each bibliographic reference. From this review, it can be deduced that previously published data show a wide dispersion in all the properties studied, and that a significant number of papers do not present accurate information on the water content of pure ILs.

Table S5. Compilation of published experimental densities (ρ), viscosities (η), electrical conductivities (κ), refractive indexes (n_D) and surface tensions (σ) of EAN and PAN.

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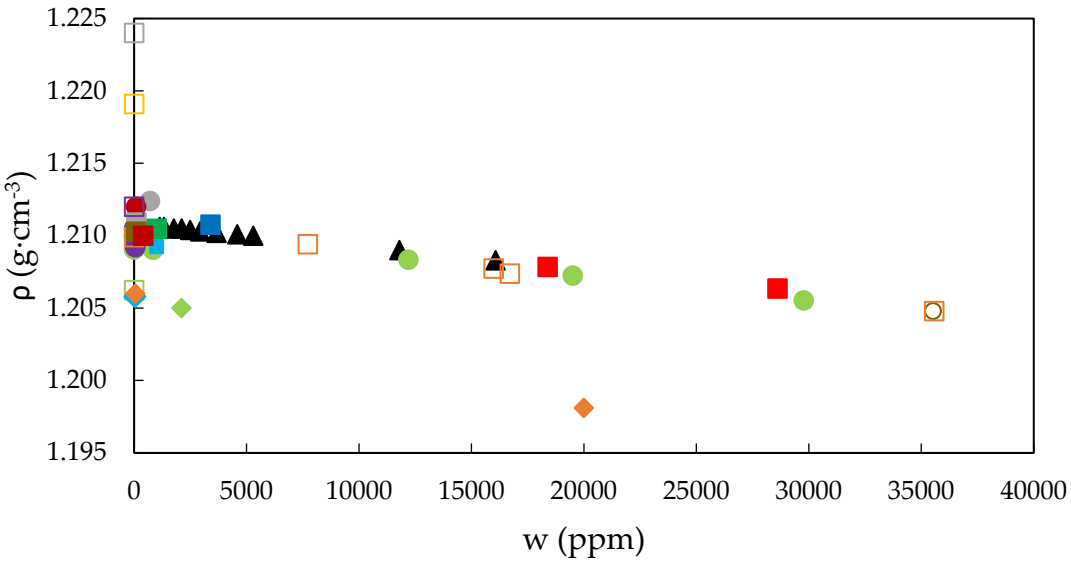

Figure S1. Density experimental data (ρ) of EAN at 25 °C of the present work (black solid triangles) and a compilation of that published near water content studied (w), with accurate measure of water content (solid) or not (open): [S1] (green dots), [S2] (yellow dots), [S5] (orange dots), [S6] (cyan dots), [S7] (red dots), [S10] (pink dots), [S14] (grey dots), [S19] (dark green dots), [S25] (brown dots), [S27] (blue dots), [S31] (dark red dots), [S37] (purple dots), [S39] (green squares), [S44] (yellow squares), [S46] (orange squares), [S49] (cyan squares), [S50] (red squares), [S51] (pink squares), [S55] (grey squares), [S56] (dark green squares), [S57] (brown squares), [S61] (blue squares), [S62] (dark red squares), [S65] (purple squares), [S66] (green rombs), [S67] (cyan rombs) and [S69] (orange rombs).

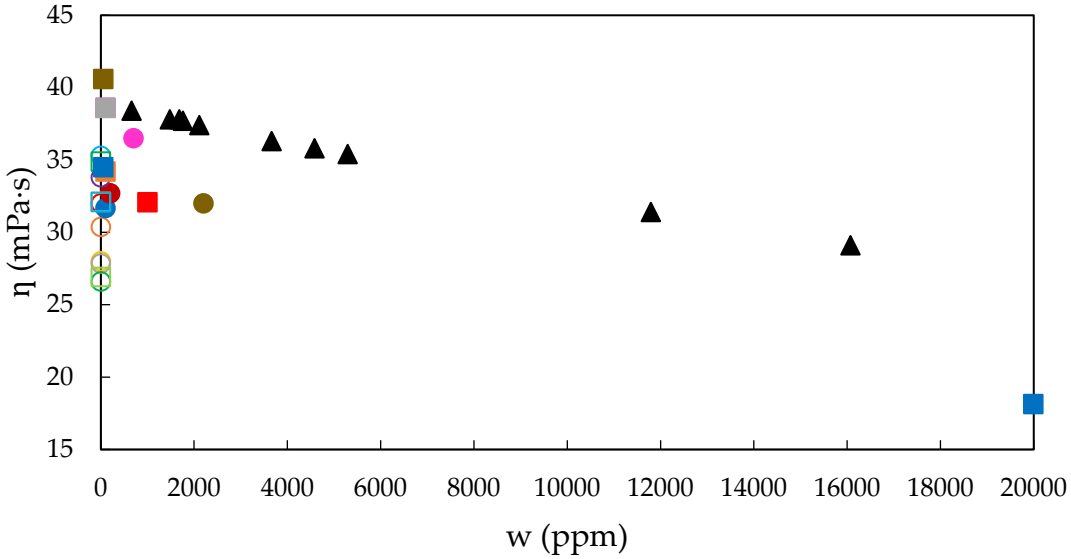

Figure S2. Viscosity experimental data (η) of EAN at 25 °C of the present work (black solid triangles) and a compilation of that published near water content studied (w), with accurate measure of water content (solid) or not (open): [S2] (green dots), [S3] (yellow dots), [S8] (orange dots), [S10] (cyan dots), [S11] (red dots), [S14] (pink dots), [S15] (grey dots), [S18] (dark green dots), [S22] (brown dots), [S33] (blue dots), [S38] (dark red dots), [S43] (purple dots), [S44] (green squares), [S45] (yellow squares), [S47] (orange squares), [S51] (cyan squares), [S53] (red squares), [S56] (pink squares), [S57] (grey squares), [S65] (dark green squares), [S68] (brown squares) and [S69] (blue squares).

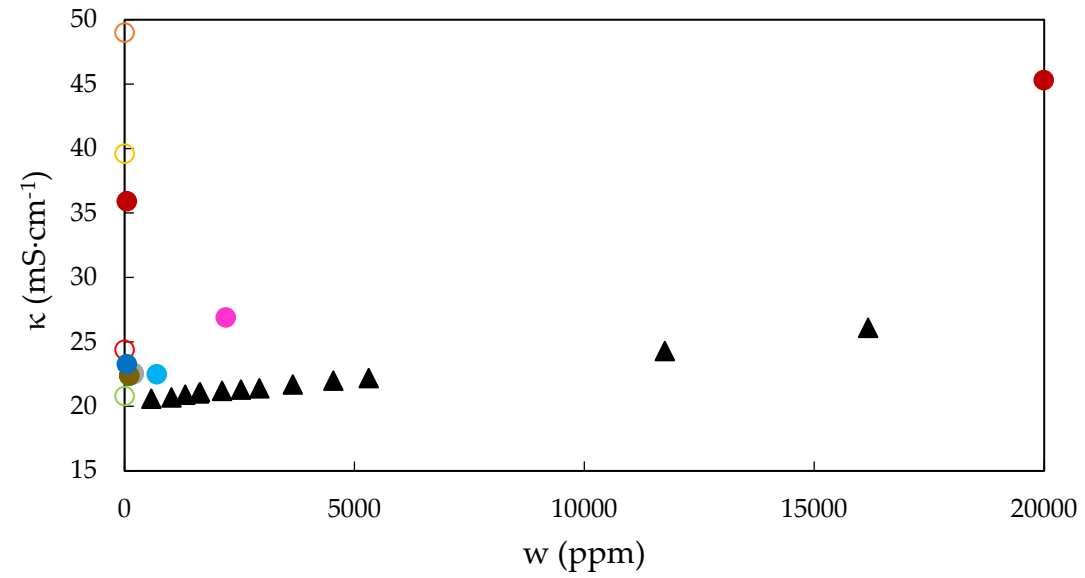

Figure S3. Electrical conductivity experimental data (κ) of EAN at 25 °C of the present work (black solid triangles) and a compilation of that published near water content studied (w), with accurate measure of water content (solid) or not (open): [S3] (green dots), [S4] (yellow dots), [S10] (orange dots), [S14] (cyan dots), [S15] (red dots), [S21] (pink dots), [S38] (grey dots), [S56] (dark green dots), [S57] (brown dots), [S68] (blue dots) and [S69] (dark red dots).

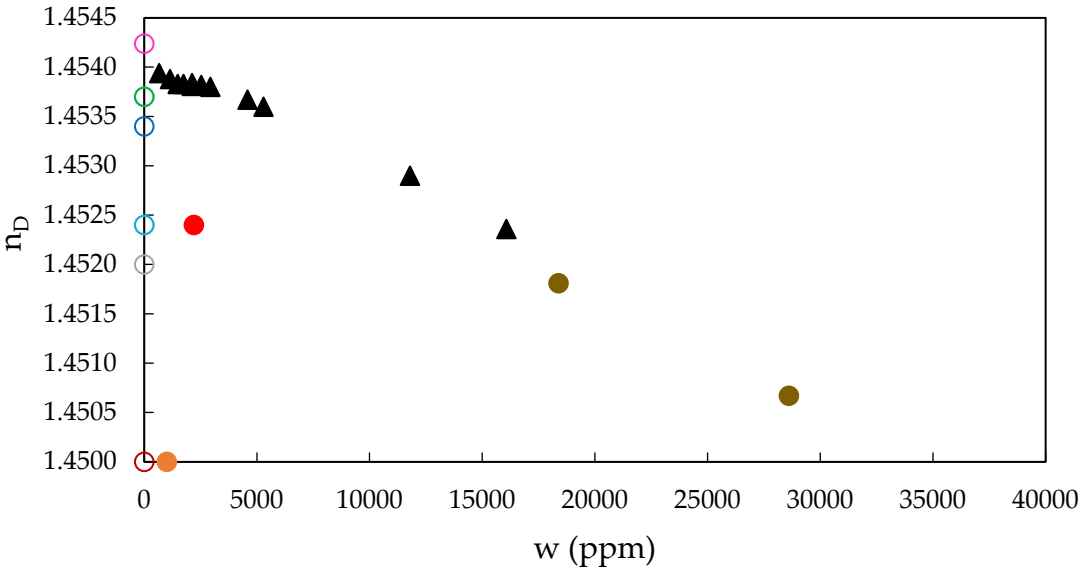

Figure S4. Refractive index experimental data (n_D) of EAN at 25 °C of the present work (black solid triangles) and a compilation of that published near water content studied (w), with accurate measure of water content (solid) or not (open): [S11] (green dots), [S15] (yellow dots), [S18] (orange dots), [S20] (cyan dots), [S21] (red dots), [S40] (pink dots), [S44] (grey dots), [S45] (dark green dots), [S50] (brown dots), [S51] (blue dots) and [S65] (dark red dots).

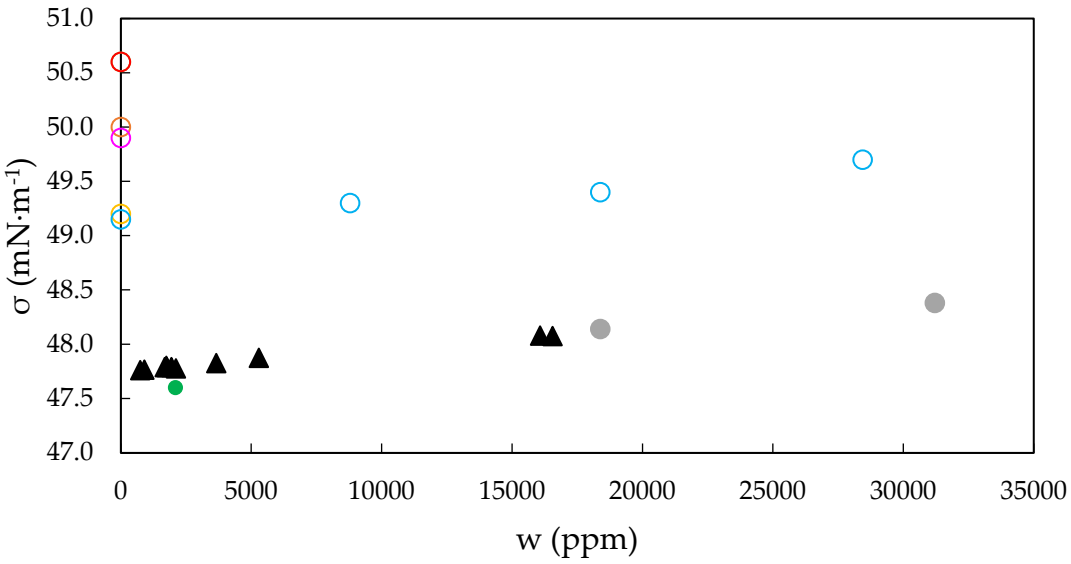

Figure S5. Surface tension experimental data (σ) of EAN at 25 °C of the present work (black solid triangles) and a compilation of that published near water content studied (w), with accurate measure of water content (solid) or not (open): [S10] (green dots), [S15] (yellow dots), [S17] (orange dots), [S26] (cyan dots), [S27] (red dots), [S48] (pink dots), [S50] (grey dots) and [S66] (dark green dots).

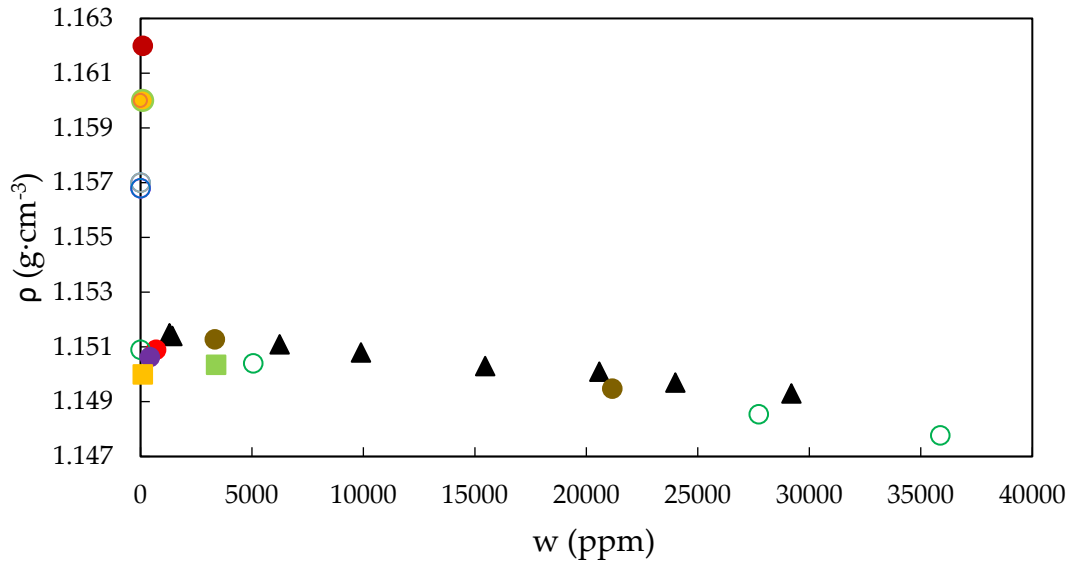

Figure S6. Density experimental data (ρ) of PAN at 25 °C of the present work (black solid triangles) and a compilation of that published near water content studied (w), with accurate measure of water content (solid) or not (open): [S5] (green dots), [S6] (yellow dots), [S7] (orange dots), [S11] (cyan dots), [S14] (red dots), [S44] (pink dots), [S45] (grey dots), [S46] (dark green dots), [S50] (brown dots), [S51] (blue dots), [S55] (dark red dots), [S57] (purple dots), [S61] (green squares) and [S62] (yellow squares).

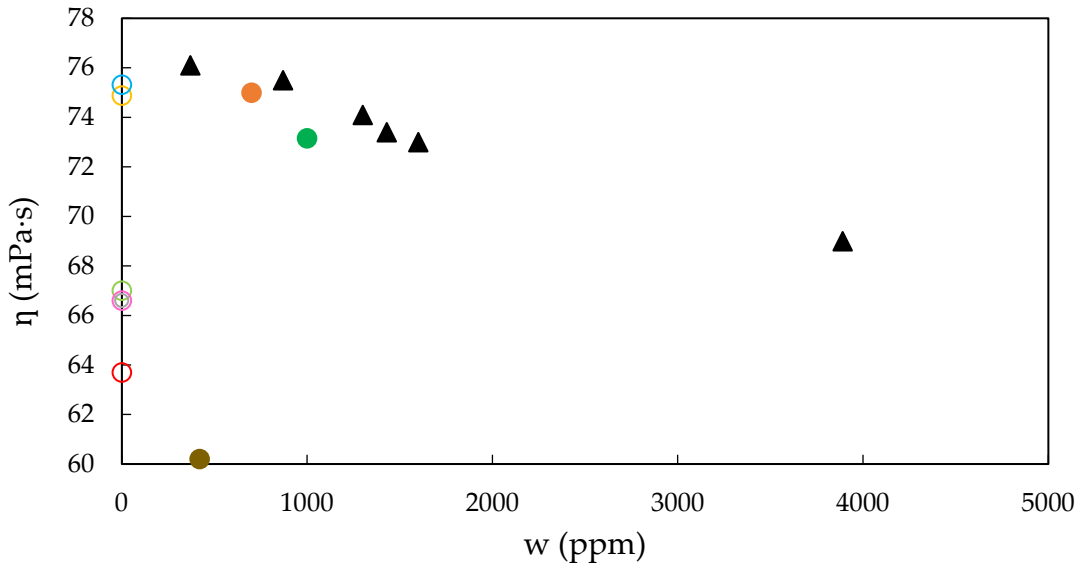

Figure S7. Viscosity experimental data (η) of PAN at 25 °C of the present work (black solid triangles) and a compilation of that published near water content studied (w), with accurate measure of water content (solid) or not (open): [S11] (green dots), [S13] (yellow dots), [S14] (orange dots), [S15] (cyan dots), [S44] (red dots), [S45] (pink dots), [S51] (grey dots), [S53] (dark green dots) and [S57] (brown dots).

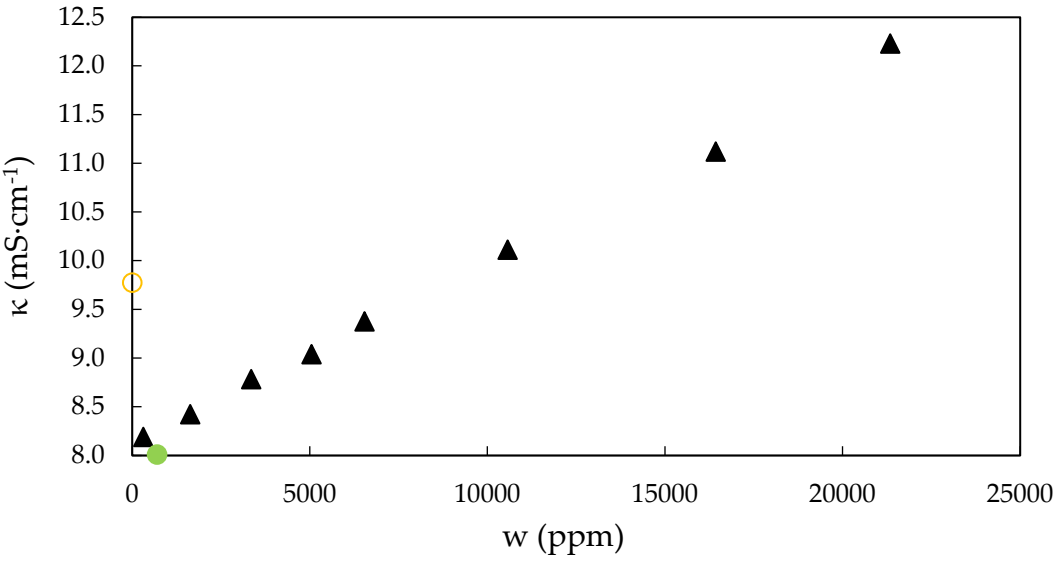

Figure S8. Electrical conductivity experimental data (κ) of PAN at 25 °C of the present work (black solid triangles) and a compilation of that published near water content studied (w), with accurate measure of water content (solid) or not (open): [S14] (green dots) and [S15] (yellow dots).

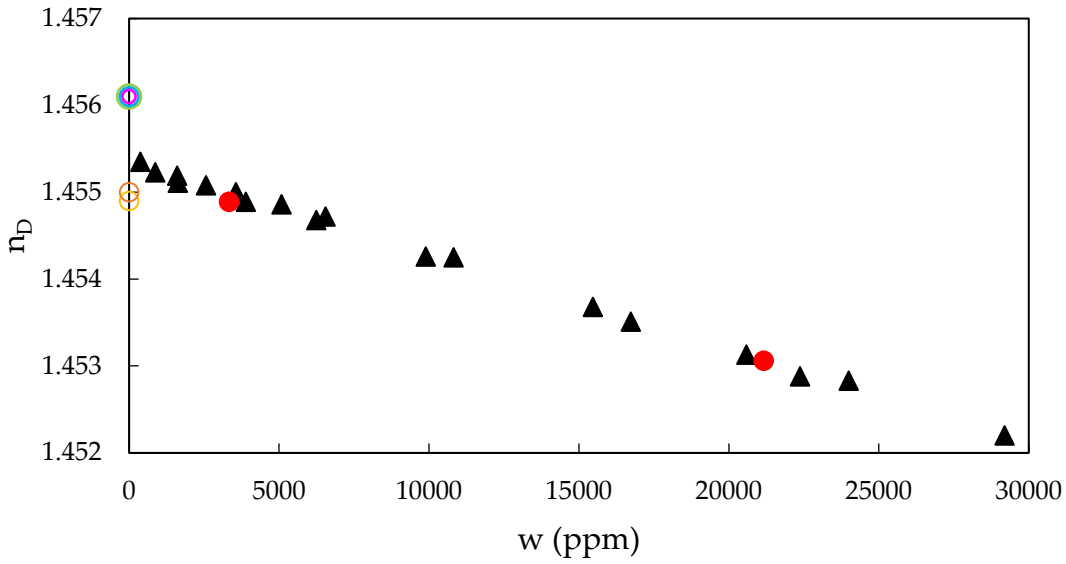

Figure S9. Refractive index experimental data (n_D) of PAN at 25 °C of the present work (black solid triangles) and a compilation of that published near water content studied (w), with accurate measure of water content (solid) or not (open): [S11] (green dots), [S15] (yellow dots), [S44] (orange dots), [S45] (cyan dots), [S50] (red dots) and [S51] (pink dots).

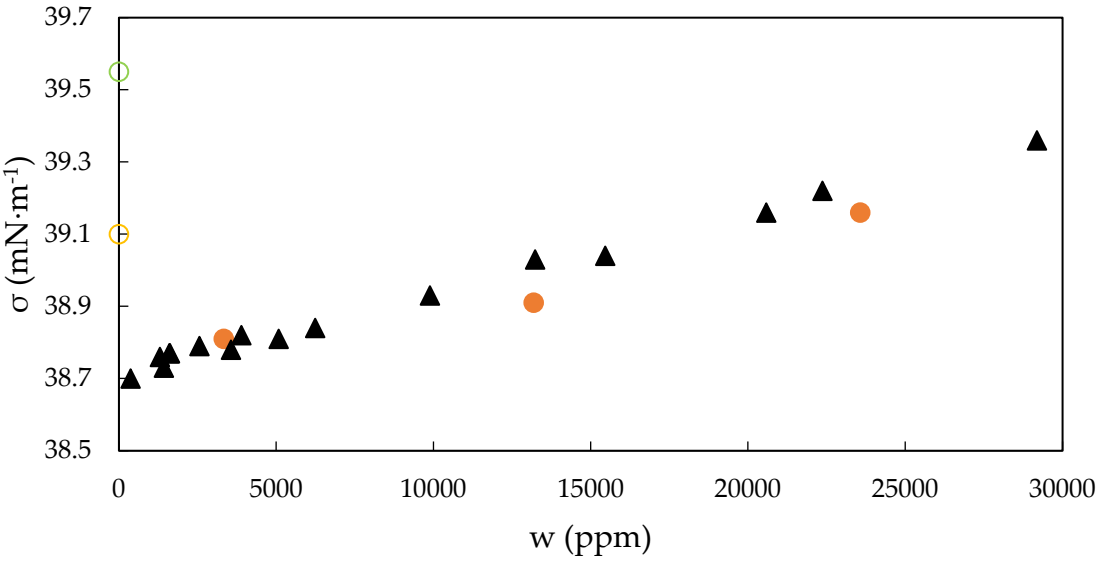

Figure S10. Surface tension experimental data (σ) of PAN at 25 °C of the present work (black solid triangles) and a compilation of that published near water content studied (w), with accurate measure of water content (solid) or not (open): [S15] (green dots), [S48] (yellow dots) and [S50] (orange dots).