TABLE S1: Experimental x_{IL}-T data for x_{IL}[bXmpy][BF$_4$] + (1- x_{IL}) 1,ω-dibromoalkane.

x_{IL}	T/K	x_{IL}	T/K	x_{IL}	T/K
x_{IL}[b2mpy][BF$_4$] + (1- x_{IL}) 1,2-dibromoethane					
0.306	411.08	0.404	367.52	0.488	317.72
0.342	394.87	0.419	358.01	0.515	301.67
0.385	377.66	0.461	336.61	0.529	286.83
x_{IL}[b2mpy][BF$_4$] + + (1- x_{IL}) 1,3-dibromopropane					
0.052	328.79	0.214	332.07	0.405	302.75
0.106	334.54	0.276	326.31	0.471	280.47
0.159	334.86	0.339	318.18		
x_{IL}[b2mpy][BF$_4$] + (1- x_{IL}) 1,4-dibromobutane					
0.322	401.28	0.528	354.88	0.625	309.84
0.369	394.81	0.560	345.25	0.647	289.33
0.419	385.94	0.586	330.69		
0.473	372.25	0.609	317.04		
x_{IL}[b2mpy][BF$_4$] + (1- x_{IL}) 1,5-dibromopentane					
0.587	422.65	0.714	377.23	0.813	326.18
0.616	412.76	0.748	362.16	0.853	302.71
0.649	400.84	0.771	350.58	0.887	288.47
0.689	387.22	0.777	345.28		
x_{IL}[b2mpy][BF$_4$] + (1- x_{IL}) 1,6-dibromohexane					
0.747	441.88	0.837	381.32	0.920	304.96
0.765	429.31	0.852	366.71	0.938	290.72
0.797	408.57	0.869	350.41		
0.811	396.29	0.891	328.64		
x_{IL}[b3mpy][BF$_4$] + + (1- x_{IL}) 1,2-dibromoethane					
0.251	404.73	0.323	354.84	0.396	303.16
0.278	389.14	0.351	338.07	0.417	287.86
0.301	370.38	0.378	319.9		
x_{IL}[b3mpy][BF$_4$] + + (1- x_{IL}) 1,3-dibromopropane					
0.051	307.31	0.135	306.22	0.237	294.03
0.089	307.97	0.186	302.46	0.294	279.19
x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,4-dibromobutane					
0.083	379.09	0.314	357.74	0.484	302.09
0.155	380.24	0.358	342.43	0.523	288.17
0.215	378.07	0.397	329.60		
0.271	369.46	0.438	316.52		
x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,5-dibromopentane					
0.511	421.43	0.657	355.31	0.752	299.87
0.561	402.57	0.672	345.89	0.773	285.17
0.584	391.54	0.707	328.58		
0.619	376.08	0.729	312.68		
x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,6-dibromohexane					
0.668	442.31	0.771	383.41	0.846	323.49
0.707	423.89	0.799	364.12	0.864	304.67
0.740	401.52	0.829	341.56	0.887	286.32
x_{IL}[b4mpy][BF$_4$] + + (1- x_{IL}) 1,2-dibromoethane					
0.267	388.01	0.353	334.86	0.417	297.68
0.297	369.42	0.381	319.23	0.430	286.86

0.323	350.91	0.402	306.77		

x_{IL}[b4mpy][BF$_4$] + + (1- x_{IL}) 1,3-dibromopropane

0.054	294.48	0.114	293.50	0.204	282.06
0.082	294.82	0.158	289.36		

x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,4-dibromobutane

0.099	356.74	0.249	361.20	0.432	324.57
0.124	359.89	0.284	356.96	0.469	300.86
0.152	361.27	0.319	352.38	0.491	284.52
0.182	362.61	0.356	347.26		
0.214	362.32	0.393	338.69		

x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,5-dibromopentane

0.513	413.49	0.636	366.13	0.726	321.43
0.563	394.74	0.665	352.47	0.759	307.66
0.599	381.39	0.700	336.02	0.796	288.76

x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,6-dibromohexane

0.710	412.55	0.800	362.39	0.886	300.83
0.741	389.23	0.827	345.09	0.901	290.17
0.779	378.65	0.853	323.24		

TABLE S2. Excess Molar Enthalpies, $H_{\mathrm{m}}^{\mathrm{E}}$, for binaries x_{IL}[bXmpy][BF$_4$] + (1-x_{IL}) 1,ω-dibromoalkane at T = 298.15 K.

x_{IL}	$\dfrac{H_{\mathrm{m}}^{\mathrm{E}}}{\mathrm{J}\cdot\mathrm{mol}^{-1}}$	x_{IL}	$\dfrac{H_{\mathrm{m}}^{\mathrm{E}}}{\mathrm{J}\cdot\mathrm{mol}^{-1}}$	x_{IL}	$\dfrac{H_{\mathrm{m}}^{\mathrm{E}}}{\mathrm{J}\cdot\mathrm{mol}^{-1}}$
x_{IL}[b2mpy][BF$_4$] + (1- x_{IL}) 1,1-dibromomethane					
0.1165	-111	0.2400	-195	0.5228	-181
0.1481	-133	0.2658	-207	0.5800	-167
0.1622	-142	0.3243	-217	0.6473	-148
0.1785	-154	0.3902	-209	0.7218	-124
0.1965	-166	0.4294	-203	0.8059	-98
0.2170	-181	0.4723	-195	0.8948	-63
x_{IL}[b2mpy][BF$_4$] + (1- x_{IL}) 1,2-dibromoethane					
0.5411	53	0.6708	59	0.9145	43
0.5760	55	0.7497	59		
0.6028	57	0.8343	54		
x_{IL}[b2mpy][BF$_4$] + (1- x_{IL}) 1,3-dibromopropane					
0.4322	122	0.6229	84	0.8638	41
0.4676	115	0.6628	77	0.9099	34
0.5058	105	0.7052	65	0.9528	19
0.5446	99	0.7503	60		
0.5833	94	0.8183	51		
x_{IL}[b2mpy][BF$_4$] + (1- x_{IL}) 1,4-dibromobutane					
0.6495	33	0.8194	22	0.9646	4
0.7042	30	0.8754	15		
0.7637	27	0.9214	8		
x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,1-dibromomethane					
0.1154	-189	0.2325	-317	0.4484	-327
0.1388	-218	0.2589	-336	0.5074	-306
0.1534	-237	0.2894	-348	0.5739	-279
0.1699	-255	0.3203	-352	0.6571	-240
0.1881	-276	0.3570	-353	0.7574	-189
0.2089	-296	0.3991	-343	0.8761	-127
x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,2-dibromoethane					
0.4246	31	0.5878	43	0.7673	43
0.4821	35	0.6288	45	0.8448	38
0.5132	38	0.6719	45	0.8997	33
0.5465	41	0.7188	44	0.9531	24
x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,3-dibromopropane					
0.2542	282	0.4944	288	0.7434	112
0.3055	318	0.5346	257	0.7879	92
0.3401	331	0.5763	223	0.8341	75
0.3649	336	0.6166	191	0.8806	60
0.4211	329	0.6580	159	0.9222	43
0.4571	312	0.6989	133	0.9621	28
x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,4-dibromobutane					
0.5164	108	0.7391	67	0.9624	23
0.5543	103	0.7900	59	0.9826	15
0.5949	94	0.8399	48	0.9912	10
0.6402	84	0.8879	38	0.9985	2

0.6893	74	0.9329	29		

x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,5-dibromopentane

0.7578	24	0.8722	21	0.9577	16
0.7904	23	0.9043	20	0.9807	13
0.8216	23	0.9328	18		

x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,1-dibromomethane

0.0980	-160	0.2275	-281	0.4540	-285
0.1168	-182	0.2562	-298	0.5105	-264
0.1431	-208	0.2890	-309	0.5786	-238
0.1589	-227	0.3237	-314	0.6514	-205
0.1806	-244	0.3628	-310	0.7398	-168
0.2024	-264	0.4045	-299	0.8499	-111

x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,2-dibromoethane

0.4459	55	0.6120	65	0.8647	63
0.4738	57	0.6665	66	0.9321	54
0.5169	59	0.7281	67		
0.5620	62	0.7919	66		

x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,3-dibromopropane

0.1158	185	0.3998	428	0.6653	215
0.1753	281	0.4549	402	0.7093	185
0.2142	328	0.5131	354	0.7538	161
0.2798	387	0.5471	319	0.8021	134
0.3224	415	0.5846	279	0.8486	96
0.3472	426	0.6261	243	0.8965	71

x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,4-dibromobutane

0.4998	159	0.7521	85	0.9182	51
0.5563	137	0.7968	74	0.9511	40
0.6125	118	0.8440	68	0.9790	24
0.6844	97	0.8861	58		

x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,5-dibromopentane

0.7527	10	0.8450	19	0.9318	16
0.7973	15	0.8922	19	0.9679	11

TABLE S3: Excess Molar Volumes, V_m^E, for binaries x_{IL}[bXmpy][BF$_4$] + (1-x_{IL}) 1,ω-dibromoalkane at T = 298.15 K.

x_{IL}	ρ $\overline{\text{kg} \cdot \text{m}^{-3}}$	$10^9 V_m^E$ $\overline{\text{m}^3 \cdot \text{mol}^{-1}}$	x_{IL}	ρ $\overline{\text{kg} \cdot \text{m}^{-3}}$	$10^9 V_m^E$ $\overline{\text{m}^3 \cdot \text{mol}^{-1}}$
x_{IL}[b2mpy][BF$_4$] + (1- x_{IL}) 1,1-dibromomethane					
0.0465	2327.89	-86	0.5258	1513.28	-180
0.1005	2176.97	-128	0.6240	1427.98	-157
0.1560	2046.17	-186	0.7278	1352.01	-120
0.2055	1945.20	-213	0.7807	1317.92	-105
0.2685	1833.77	-223	0.8386	1283.50	-81
0.3984	1650.42	-220	0.9112	1244.14	-36
0.4649	1574.68	-207			
x_{IL}[b2mpy][BF$_4$] + (1- x_{IL}) 1,2-dibromoethane					
0.6649	1378.58	-222	0.9077	1243.67	-140
0.7615	1319.96	-210	0.9599	1219.38	-83
0.8669	1263.60	-161			
x_{IL}[b2mpy][BF$_4$] + (1- x_{IL}) 1,3-dibromopropane					
0.3750	1559.80	-135	0.6248	1382.95	152
0.4234	1520.62	-56	0.7023	1338.75	181
0.4828	1476.53	-15	0.7885	1294.03	194
0.5536	1427.88	60	0.8912	1246.49	120
x_{IL}[b2mpy][BF$_4$] + (1- x_{IL}) 1,4-dibromobutane					
0.6636	1346.54	-177	0.8126	1275.95	66
0.6891	1333.80	-139	0.9010	1239.03	88
0.7305	1313.46	-38	0.9727	1211.27	65
0.7746	1292.94	22			
x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,1-dibromomethane					
0.0267	2387.07	-43	0.5294	1491.28	7
0.0677	2259.04	-71	0.6149	1416.59	24
0.1250	2106.17	-86	0.7070	1347.64	38
0.1956	1950.44	-95	0.8145	1279.11	46
0.2816	1796.32	-67	0.8670	1249.61	29
0.3900	1642.94	-48	0.9220	1220.85	30
0.4601	1561.31	-12			
x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,2-dibromoethane					
0.4635	1512.18	-21	0.7560	1303.23	81
0.5093	1473.16	-8	0.8780	1238.39	88
0.5802	1417.73	32	0.9305	1213.60	56
0.6690	1356.32	67			
x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,3-dibromopropane					
0.2397	1670.83	-63	0.6232	1368.32	89
0.3099	1602.86	-56	0.6961	1325.84	123
0.3683	1551.15	-26	0.7881	1277.32	139
0.4233	1506.27	6	0.8825	1232.61	116
0.4840	1460.51	35	0.9300	1211.91	73
0.5500	1414.77	62	0.9541	1201.84	38
x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,4-dibromobutane					
0.5599	1385.38	-76	0.8085	1261.48	18

0.6544	1334.96	-56	0.9010	1221.99	71
0.7307	1297.28	-15	0.9648	1196.70	70
0.7650	1281.21	-3			
		x_{IL}[b3mpy][BF$_4$] + (1- x_{IL}) 1,5-dibromobutane			
0.7620	1272.93	-33	0.8901	1222.64	48
0.8332	1244.44	9	0.9557	1198.72	64
0.8705	1230.12	28			
		x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,1-dibromomethane			
0.0223	2401.54	-39	0.5262	1492.89	60
0.0413	2339.26	-59	0.5918	1434.25	74
0.0711	2249.01	-70	0.6688	1373.59	84
0.1279	2098.73	-88	0.7200	1337.57	74
0.1973	1945.89	-64	0.7894	1293.03	68
0.2813	1795.45	-29	0.8499	1257.94	56
0.3935	1636.93	12	0.9045	1228.83	34
0.4601	1559.77	42			
		x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,2-dibromoethane			
0.4382	1535.10	-64	0.7593	1301.41	20
0.5056	1476.15	-44	0.8693	1242.67	30
0.5794	1418.51	-25	0.9422	1208.01	21
0.6654	1358.76	1			
		x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,3-dibromopropane			
0.0327	1922.18	-8	0.4211	1506.46	142
0.0982	1832.84	-25	0.4886	1455.78	167
0.1406	1779.92	-10	0.5525	1411.74	192
0.2153	1695.02	39	0.6247	1366.20	201
0.2671	1641.87	70	0.7054	1319.82	198
0.3157	1595.02	94	0.7987	1271.60	150
0.3692	1548.81	115	0.8969	1225.81	99
		x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,4-dibromobutane			
0.4915	1423.32	19	0.7330	1294.67	84
0.5194	1406.75	35	0.8096	1259.87	68
0.5835	1370.54	62	0.8974	1222.70	54
0.6564	1332.20	75	0.9446	1203.94	33
		x_{IL}[b4mpy][BF$_4$] + (1- x_{IL}) 1,5-dibromopentane			
0.7611	1272.03	80	0.9131	1213.58	50
0.8345	1243.03	71			

TABLE S4. Coefficients A_i and k, and standard deviations $s(Y_m^E)$, obtained for equation (1).

Mixture	k_h	A_0	A_1	A_2	A_3	s
	$Y_m^E = H_m^E/(\text{J} \cdot \text{mol}^{-1})$					
x_{IL}[b2mpy][BF$_4$]+						
(1- x_{IL})BrCH$_2$Br	0.340	-257	-1038			7
(1- x_{IL})BrCH$_2$CH$_2$Br	4.529	451	-732	546		0
(1- x_{IL})BrCH$_2$(CH$_2$)CH$_2$Br	1.290	1232	-2569	1742		2
(1- x_{IL})BrCH$_2$(CH$_2$)$_2$CH$_2$Br	2.098	161	-6	-121		1
x_{IL}[b3mpy][BF$_4$]+						
(1- x_{IL})BrCH$_2$Br	0.771	-1084	-4387	11840	-8190	3
(1- x_{IL})BrCH$_2$CH$_2$Br	5.693	399	-794	595		1
(1- x_{IL})BrCH$_2$(CH$_2$)CH$_2$Br	0.856	-566	13279	-27018	15299	2
(1- x_{IL})BrCH$_2$(CH$_2$)$_2$CH$_2$Br	2.097	1122	-2797	1752		2
x_{IL}[b4mpy][BF$_4$]+						
(1- x_{IL})BrCH$_2$Br	0.791	-1331	-1829	6797	-4952	3
(1- x_{IL})BrCH$_2$CH$_2$Br	3.663	505	-920	874		1
(1- x_{IL})BrCH$_2$(CH$_2$)CH$_2$Br	0.451	-56	5767	-4711		13
(1- x_{IL})BrCH$_2$(CH$_2$)$_2$CH$_2$Br	1.565	1978	-4716	3440		2
(1- x_{IL})BrCH$_2$(CH$_2$)$_3$CH$_2$Br	1.859	-171	286	99		1

Mixture	k_v	A_0	A_1	A_2	A_3	s
	$Y_m^E = 10^9 \cdot V_m^E/(\text{m}^3 \cdot \text{mol}^{-1})$					
x_{IL}[b2mpy][BF$_4$]+						
(1- x_{IL})BrCH$_2$Br	0.676	-1243	535	950	-1053	7
(1- x_{IL})BrCH$_2$CH$_2$Br	3.999	-1760	2928	-1956		3
(1- x_{IL})BrCH$_2$(CH$_2$)CH$_2$Br	0.442	2229	-12890	14094		12
(1- x_{IL})BrCH$_2$(CH$_2$)$_2$CH$_2$Br	1.565	1978	-4716	3440		2
x_{IL}[b3mpy][BF$_4$]+						
(1- x_{IL})BrCH$_2$Br	0.626	-857	1387			7
(1- x_{IL})BrCH$_2$CH$_2$Br	1.202	-816	1734	3		5
(1- x_{IL})BrCH$_2$(CH$_2$)CH$_2$Br	1.162	-786	1551	187		5
(1- x_{IL})BrCH$_2$(CH$_2$)$_2$CH$_2$Br	3.468	-814	1645			5
(1- x_{IL})BrCH$_2$(CH$_2$)$_3$CH$_2$Br	3.497	-528	318	1068		3
x_{IL}[b4mpy][BF$_4$]+						
(1- x_{IL})BrCH$_2$Br	0.513	-873	1701			5
(1- x_{IL})BrCH$_2$CH$_2$Br	1.100	-727	1129	1		1
(1- x_{IL})BrCH$_2$(CH$_2$)CH$_2$Br	0.696	-387	1908			7
(1- x_{IL})BrCH$_2$(CH$_2$)$_2$CH$_2$Br	0.601	-1330	2300			4
(1- x_{IL})BrCH$_2$(CH$_2$)$_3$CH$_2$Br	2.182	286	77			0