

Electronic Supporting Information

Interesting thermal variations owing to cationic ring structural features in
protic ionic liquids

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Table S1: The values of fitting parameters of Eq. (3) for ionic liquids in different solvents, average root mean squares deviation for all the calculations < 5%

Coefficients	q ₁	q ₂	q ₃
[EMIM][BF ₄]	-2882±33	2424±63	-
[BMIM][BF ₄]	-847 ±6	568±10	-
[MIM][BF ₄]	4938±112	-84396±1372	498023±5944
NaCl	-1654±91	8571±137	-

Table S2: The limiting excess molar partial enthalpies, $H^{E,\infty}_{IL}$ and the binding energies (ΔE) for different solutes used in the present study

	NaCl	[MIM][BF ₄]	[EMIM][BF ₄]	[BMIM][BF ₄]
$H^{E,\infty}_{IL}$ (kJ mol ⁻¹)	97	-215	205	104
Binding energies (kJ mol ⁻¹)	-756	-383	-348	-352

Table S3: The excess partial molar enthalpy H_{IL}^E data for [EMIM][BF₄]-water system

$m^{0.5}/(\text{mol kg}^{-1})^{0.5}$	$H_{IL}^E/(\text{kJ mol}^{-1})$
0	204585
0.00114	166702
0.00158	152136
0.00253	126646
0.00341	105707
0.00411	91142
0.00607	57560
0.00859	29382
0.01052	19077
0.01214	14252
0.01358	11416
0.01487	9494
0.01606	8246
0.01717	7344
0.01822	6658