

Study on thermodynamic properties and estimation of polarity of ionic liquids { [C_nmmim][NTf₂] (n = 2, 4) }

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Section A ¹H NMR spectra

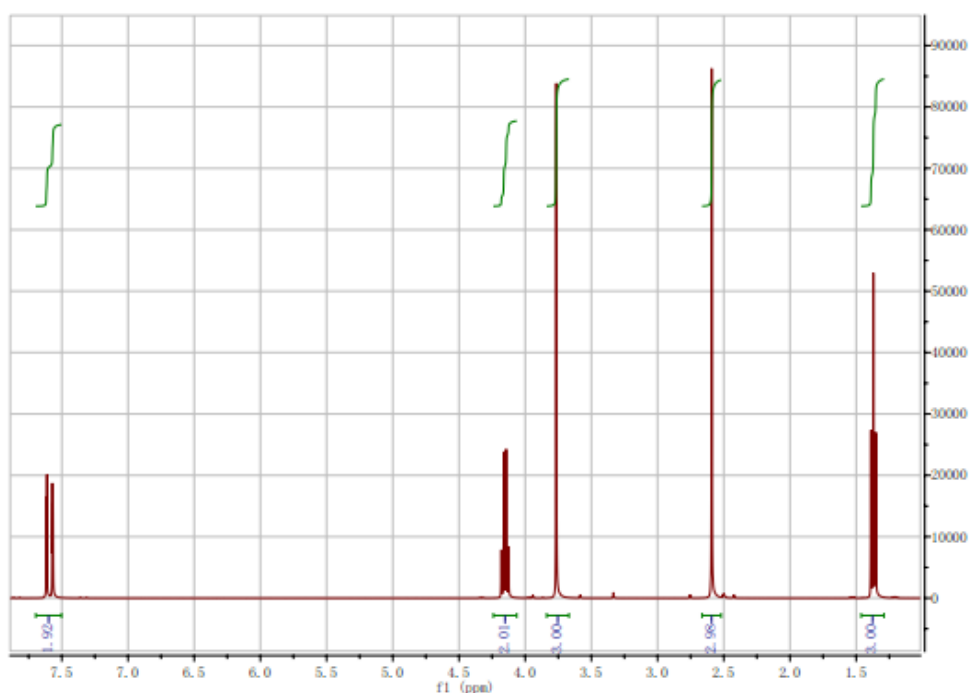


Fig. S1 ¹H NMR of IL [C₂mmim][NTf₂]

Table S1 The ¹H NMR spectrum δ_H (400 MHz, DMSO) of IL [C₂mmim][NTf₂]

Chemical shift	Hydrogen number	Radical
1.351 (t)	3	NCH ₂ CH ₃
2.558 (s)	3	CCH ₃
3.753 (s)	3	NCH ₃
4.135~4.196 (q)	2	NCH ₂ CH ₃
7.553 (d)	1	C(4)H
7.614 (d)	1	C(5)H

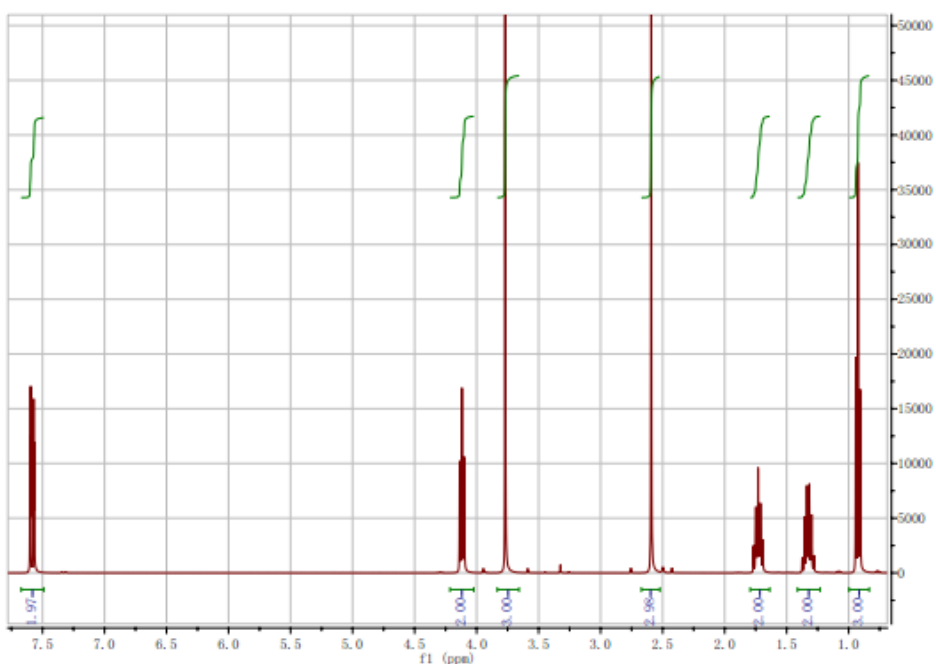


Fig. S2 ^1H NMR of IL $[\text{C}_4\text{mmim}][\text{NTf}_2]$

Table S2 The ^1H NMR spectrum δ_{H} (400 MHz, DMSO) of IL $[\text{C}_4\text{mmim}][\text{NTf}_2]$

Chemical shift	Hydrogen number	Radical
0.806~0.901(t)	3	NCH_2CH_3
1.251~1.298(m)	2	$\text{NCH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
1.697~1.752(m)	2	$\text{NCH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
2.606(s)	3	CCH_3
3.751(s)	3	NCH_3
4.195~4.250(t)	2	$\text{NCH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
7.569 (d)	1	$\text{C}(4)\text{H}$
7.605 (d)	1	$\text{C}(5)\text{H}$

Section B Thermal analysis

Calorimetric data were obtained with a differential scanning calorimeter DSC1 (Universal V4.5A TA Instruments). The temperature was -100 – 100 °C with heating rate of 10 °C \cdot min $^{-1}$. Then samples were incubated at -100 °C for 5 min and were then heated to 100 °C.

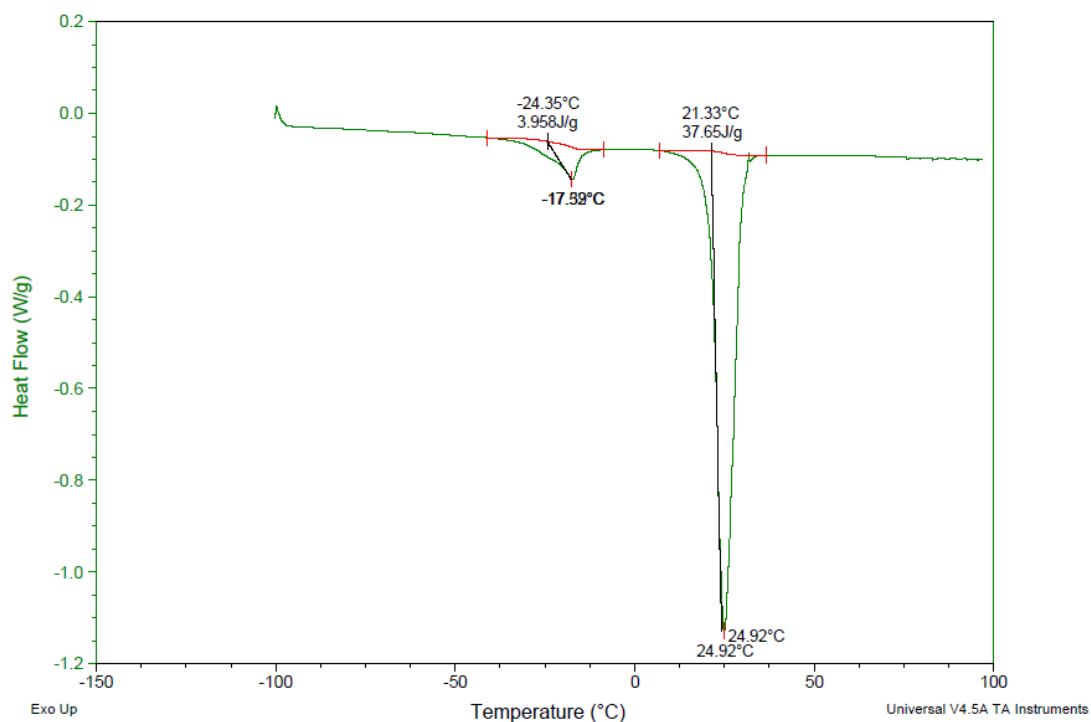


Fig. S3 DSC trace of IL [C₂mmim][NTf₂]

The temperature range was – 100-100°C with heating rate of 10 °C·min⁻¹. Then samples were incubated at – 100°C for 5 min and were then heated to 100°C.

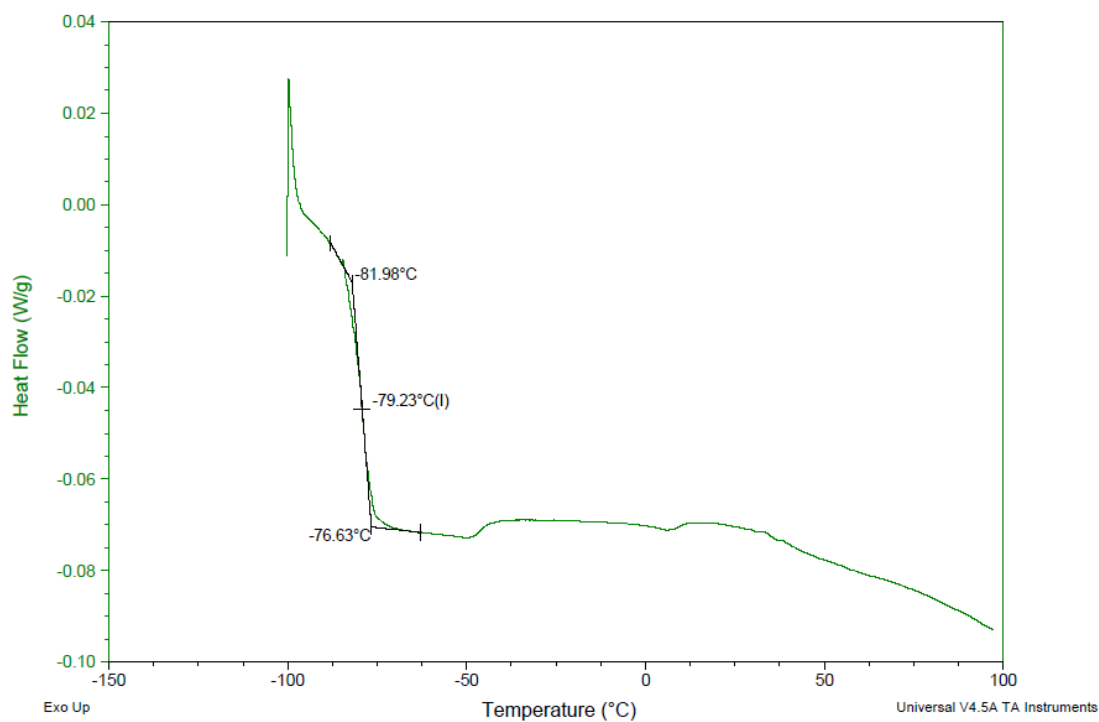


Fig. S4 DSC trace of IL [C₄mmim][NTf₂]