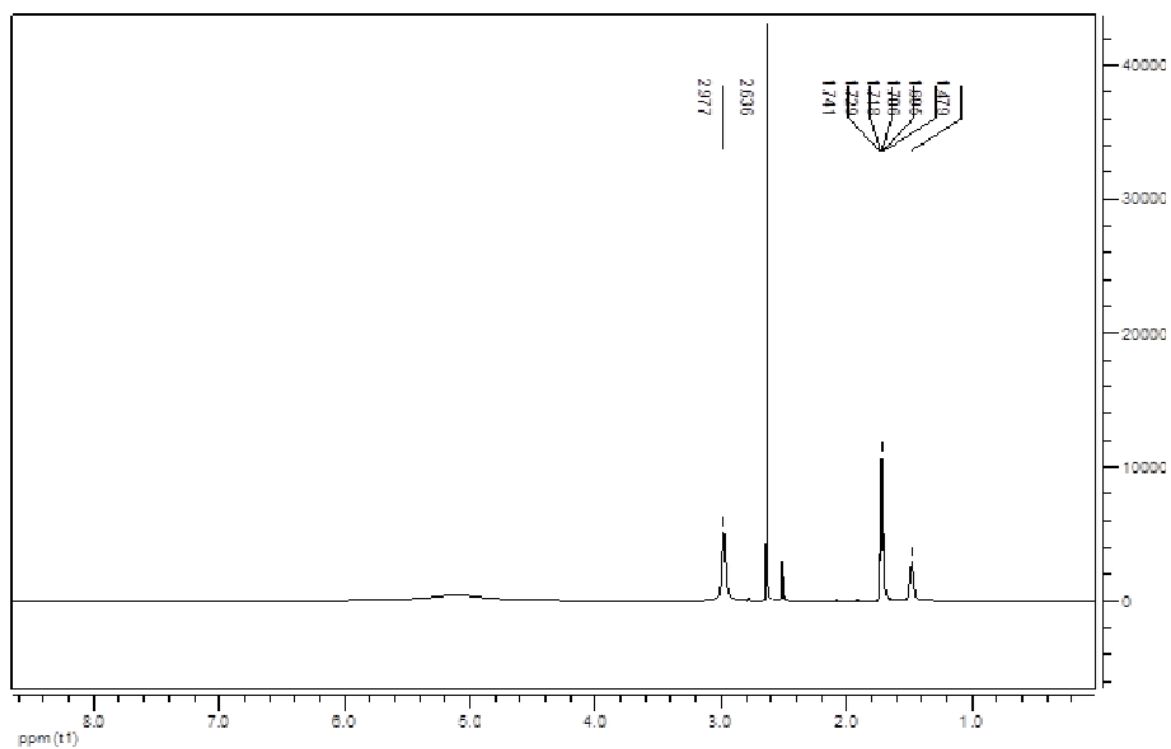


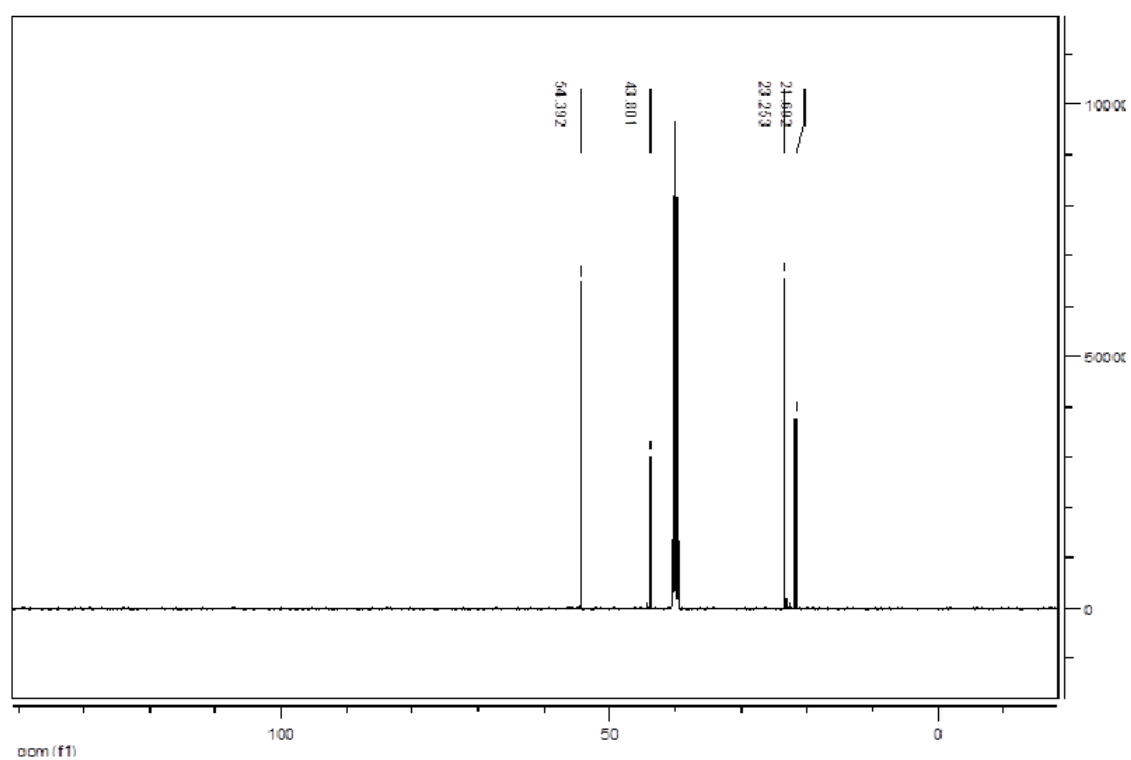
## SUPPORTING MATERIALS FOR PILs

*1*-methyl piperidinium hydrgensulfate [MPip][HSO<sub>4</sub>]

<sup>1</sup>H NMR Spectra

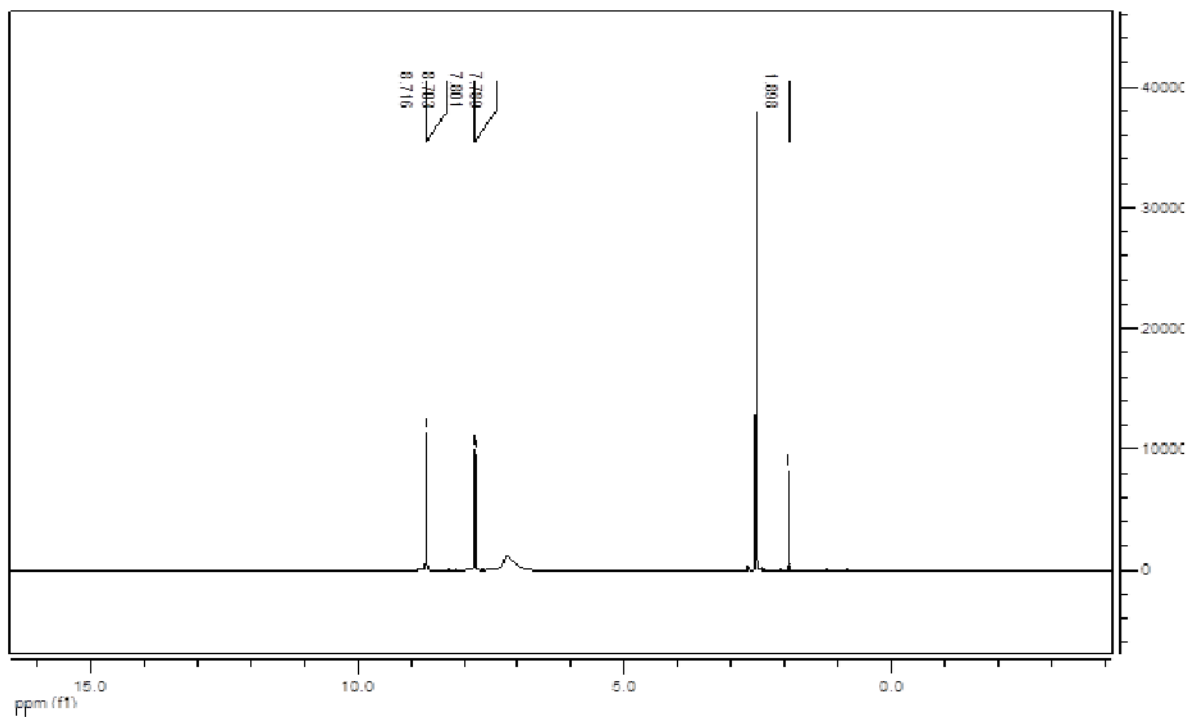


<sup>13</sup>C NMR – Spectra

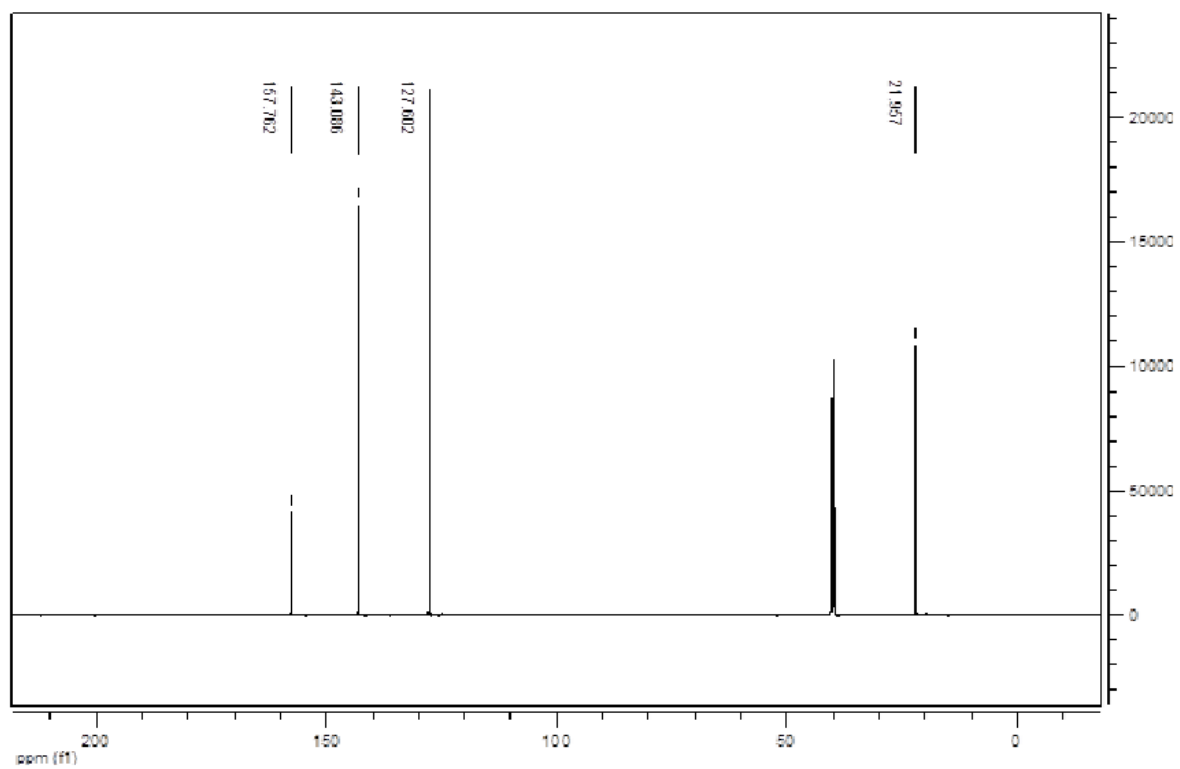


4-methyl pyridinium hydrogensulfate [MPy][HSO<sub>4</sub>]

<sup>1</sup>H NMR Spectra

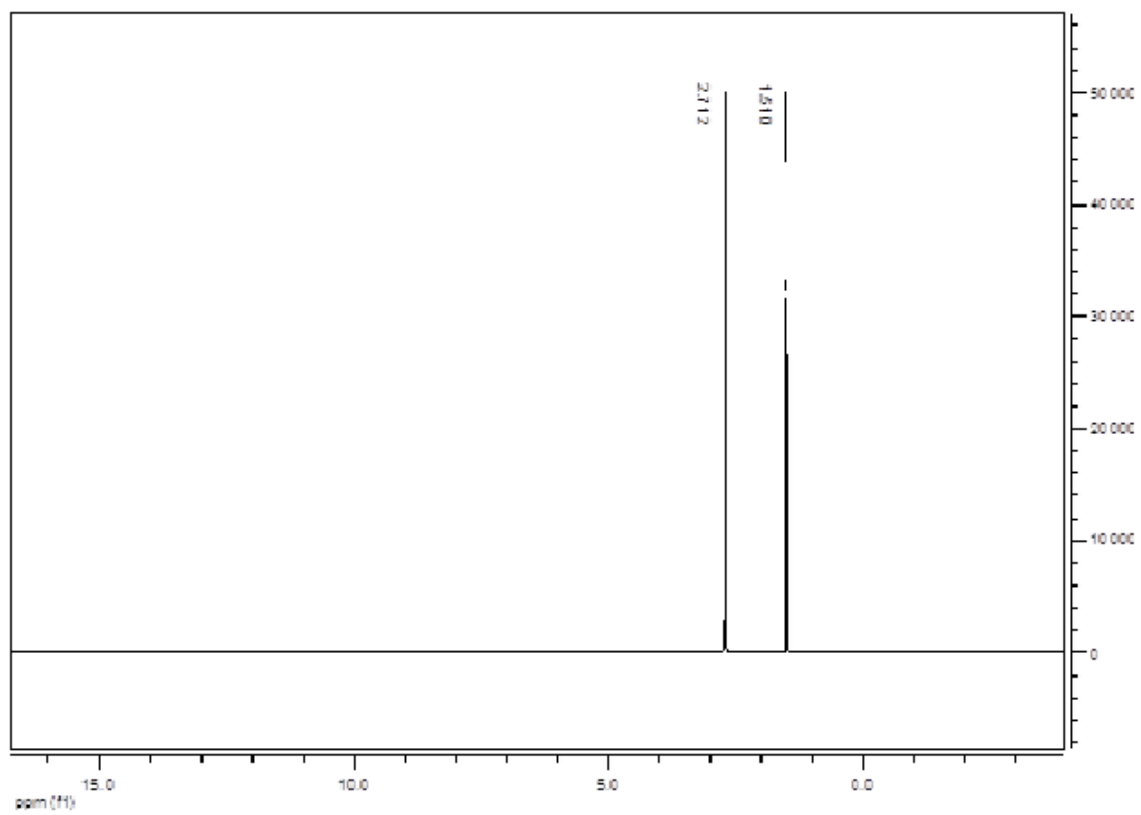


<sup>13</sup>C NMR – Spectra

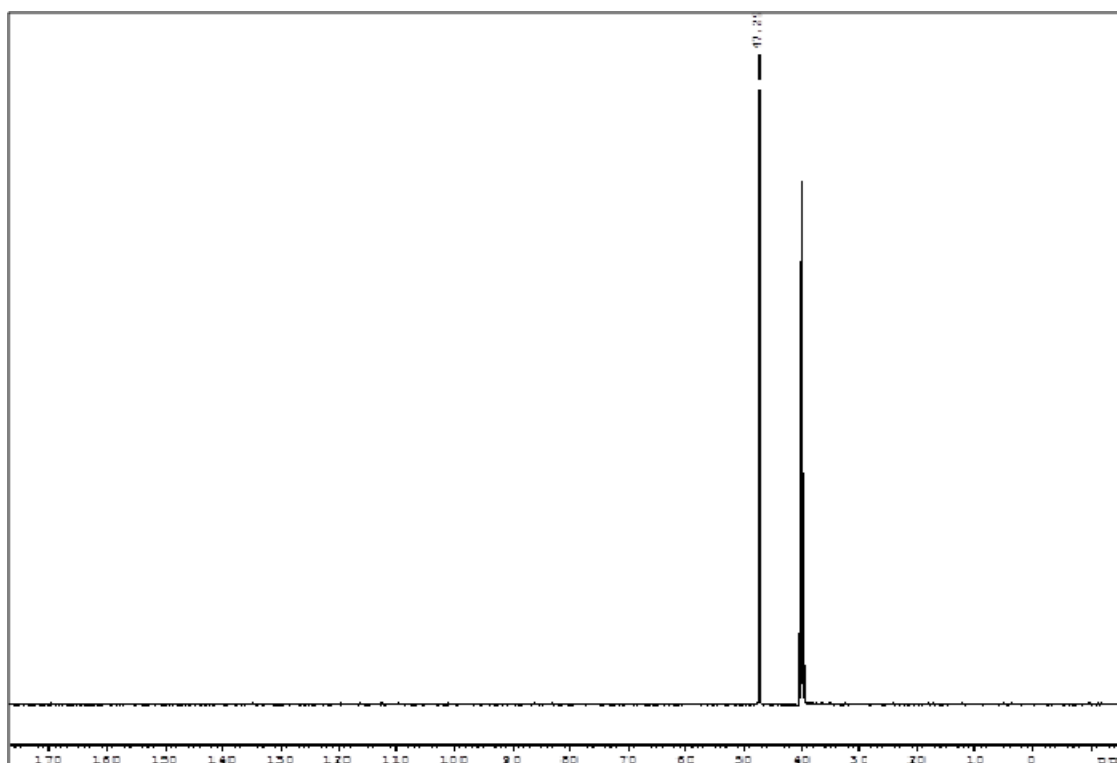


*Piperazinium hydrogensulfate* [Pi][HSO<sub>4</sub>]

<sup>1</sup>H NMR Spectra



<sup>13</sup>C NMR – Spectra

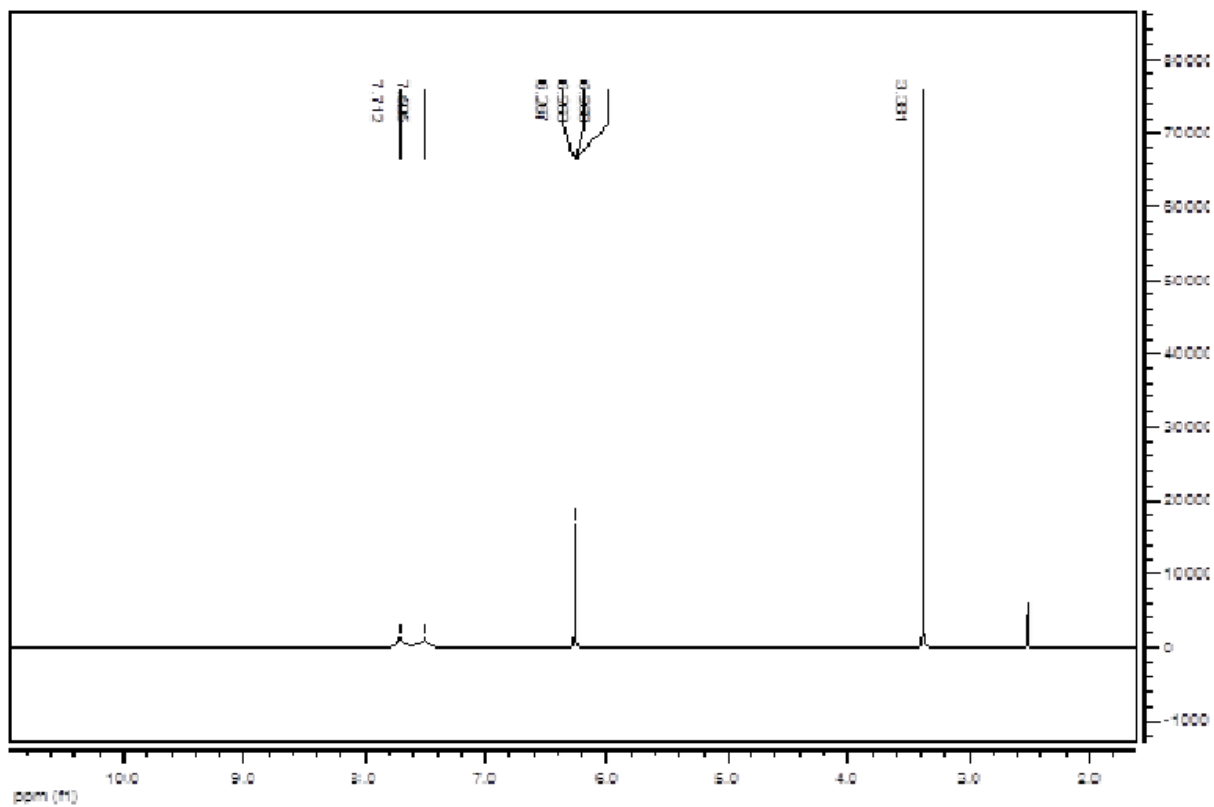




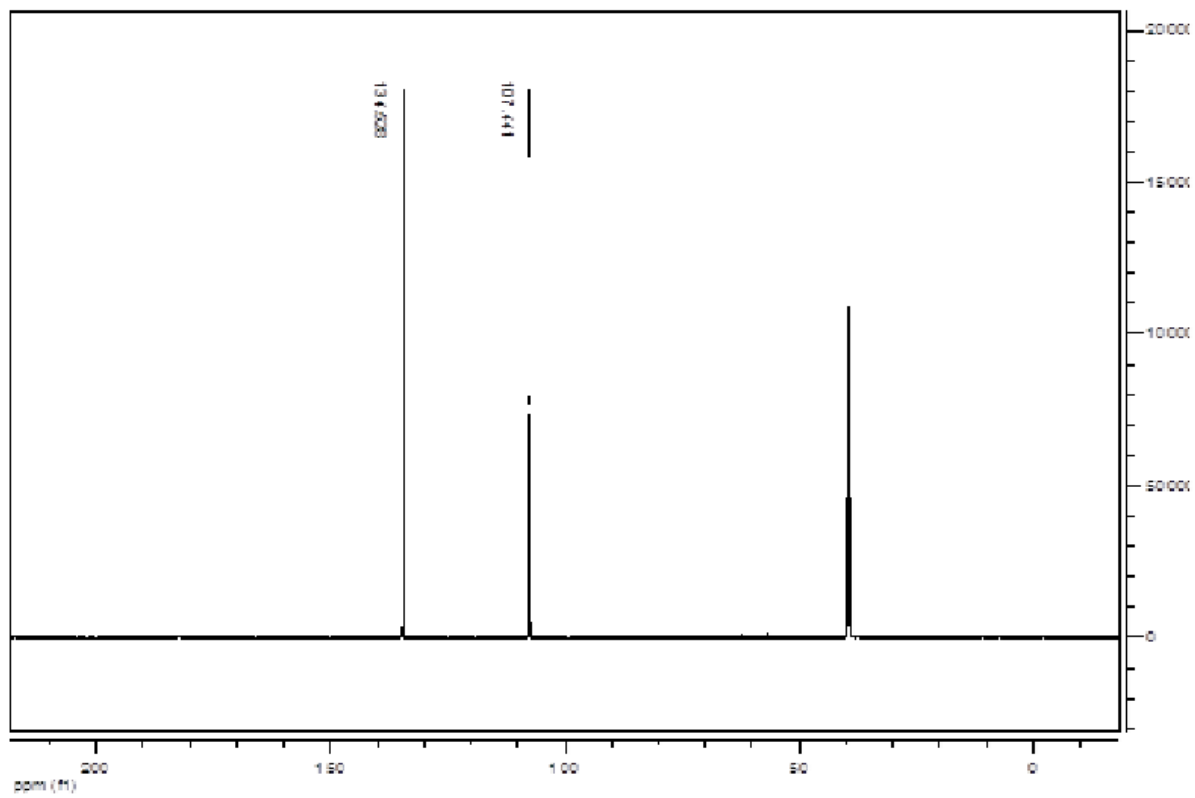


*Pyrazolium hydrogensulfate* [P][HSO<sub>4</sub>]

<sup>1</sup>H NMR Spectra

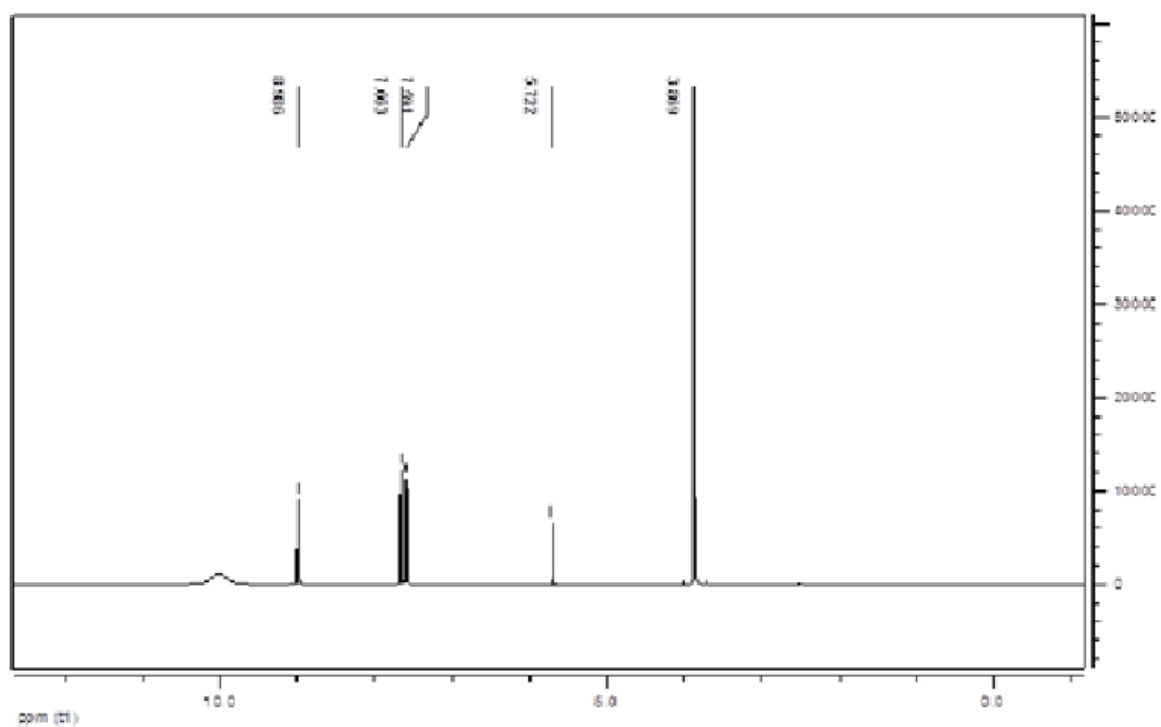


<sup>13</sup>C NMR – Spectra

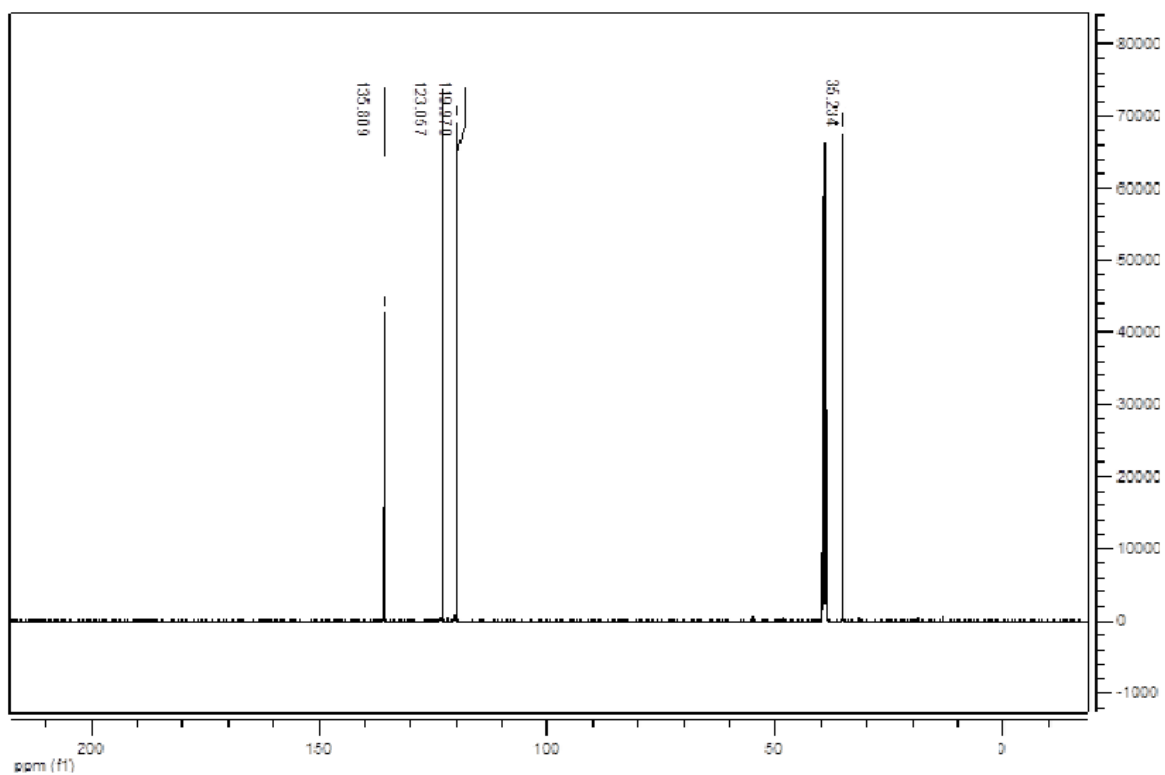


*1-methyl imidazolium hydrogensulfate* [MIM][HSO<sub>4</sub>]

<sup>1</sup>H NMR Spectra

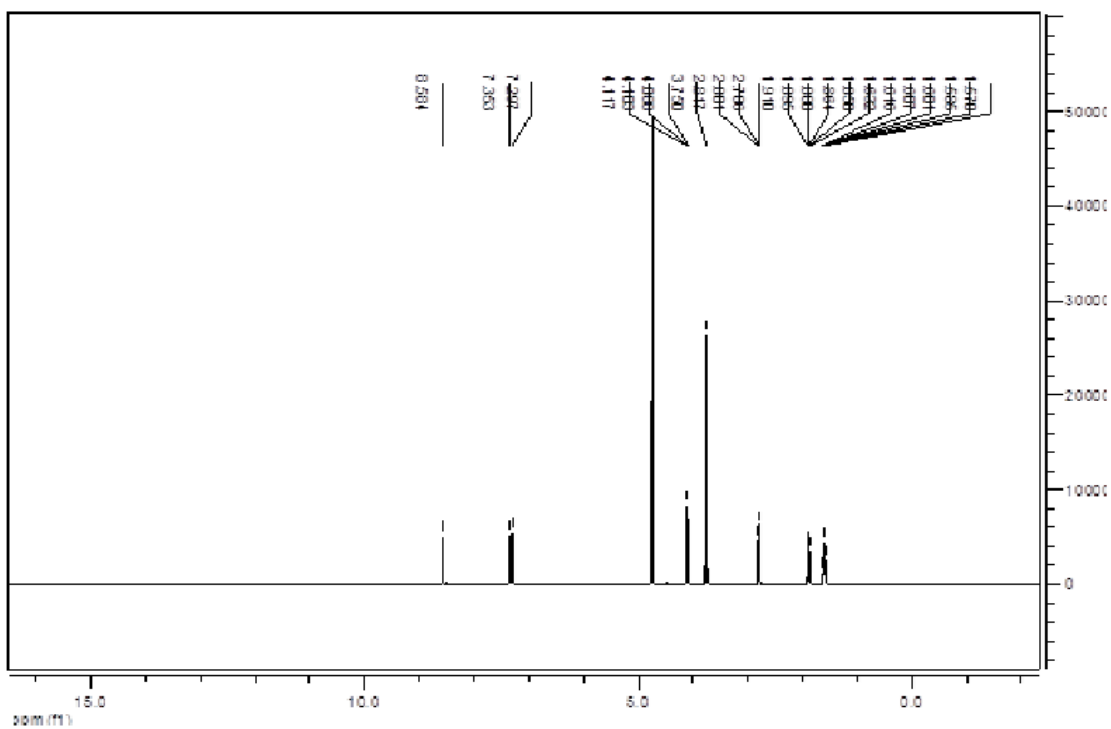


<sup>13</sup>C NMR – Spectra

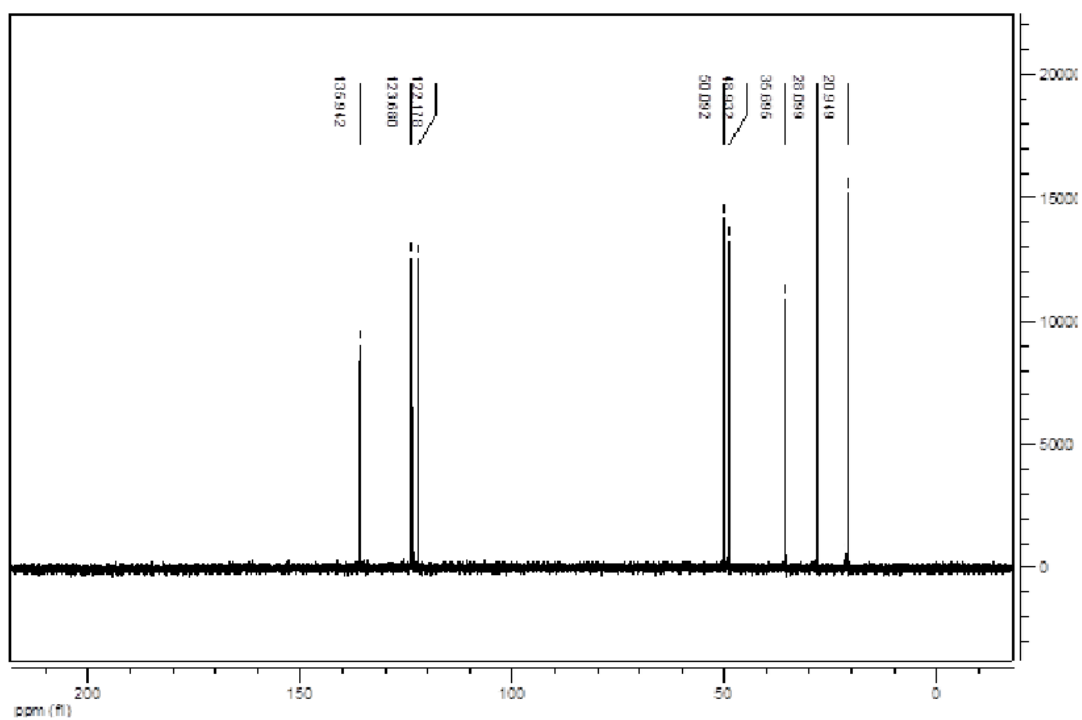


*1, 4 sultone-methyl imidazolium hydrogensulfate* [BSMIM][HSO<sub>4</sub>]

<sup>1</sup>H NMR Spectra



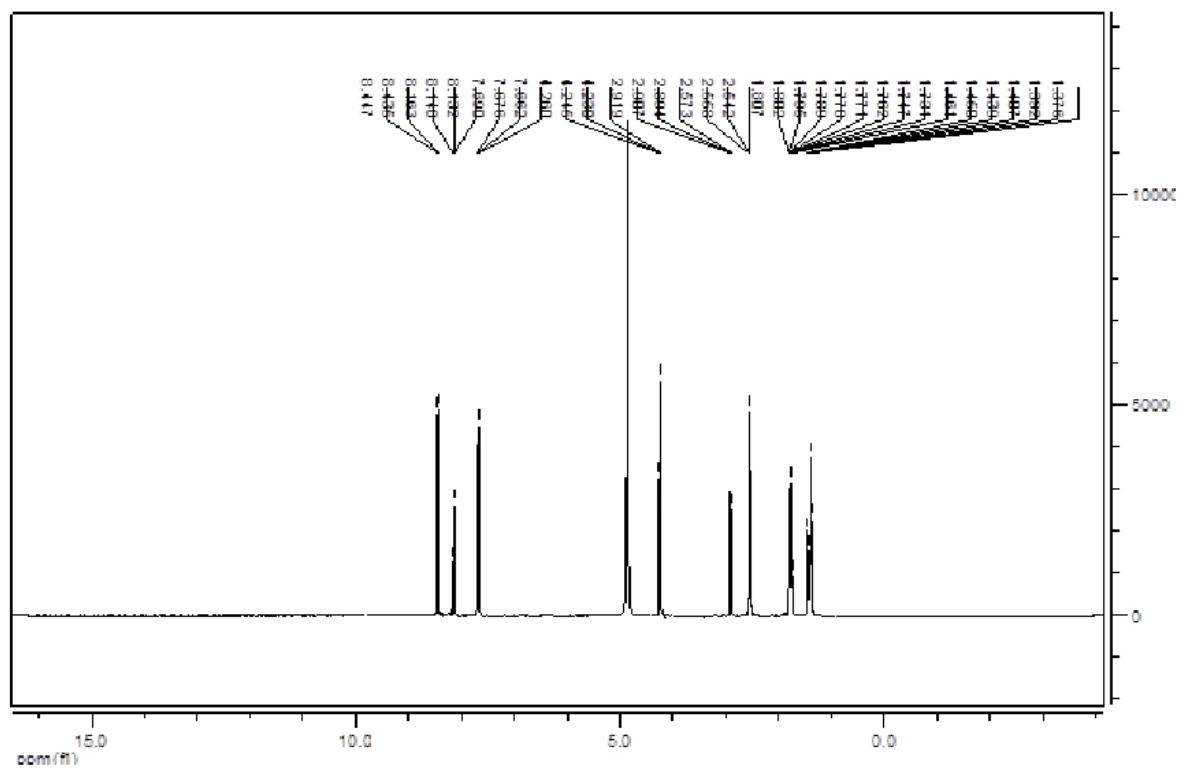
<sup>13</sup>C NMR – Spectra



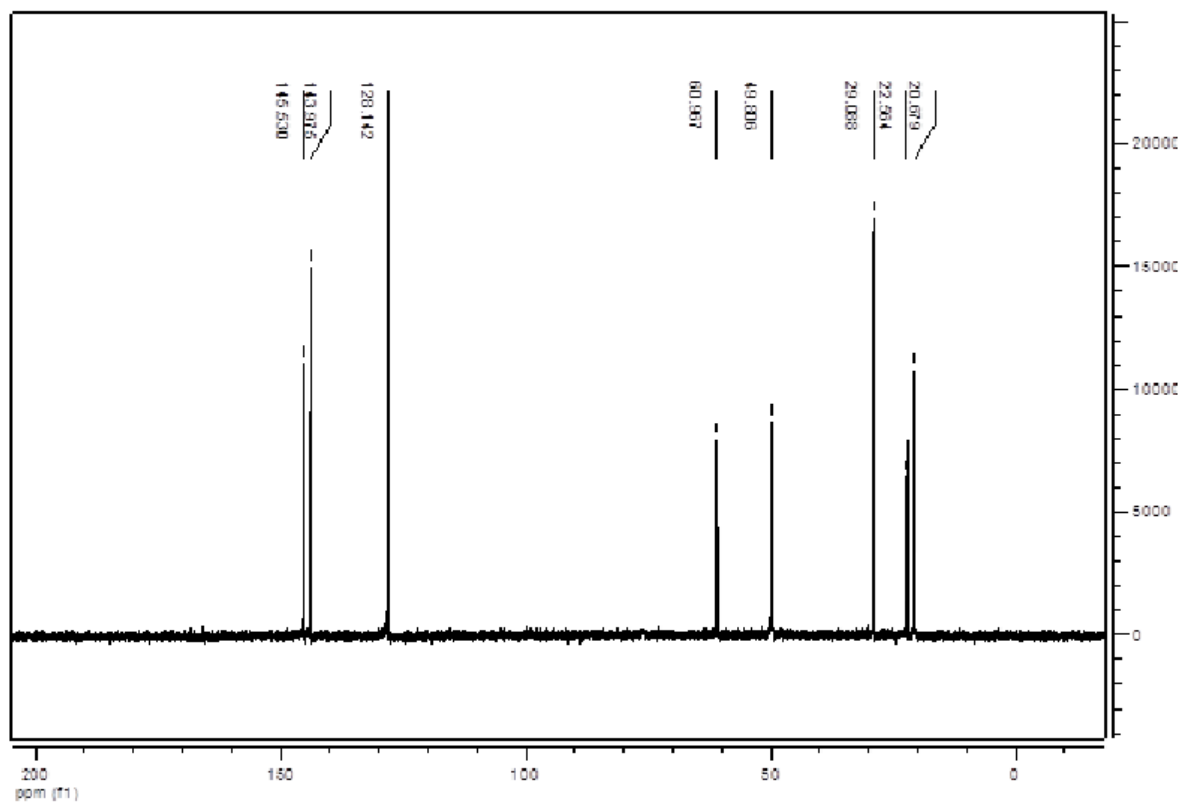


*1, 4 sultone-pyridinium hydrogensulfate [BSPy][HSO<sub>4</sub>]*

<sup>1</sup>H NMR Spectra



<sup>13</sup>C NMR – Spectra







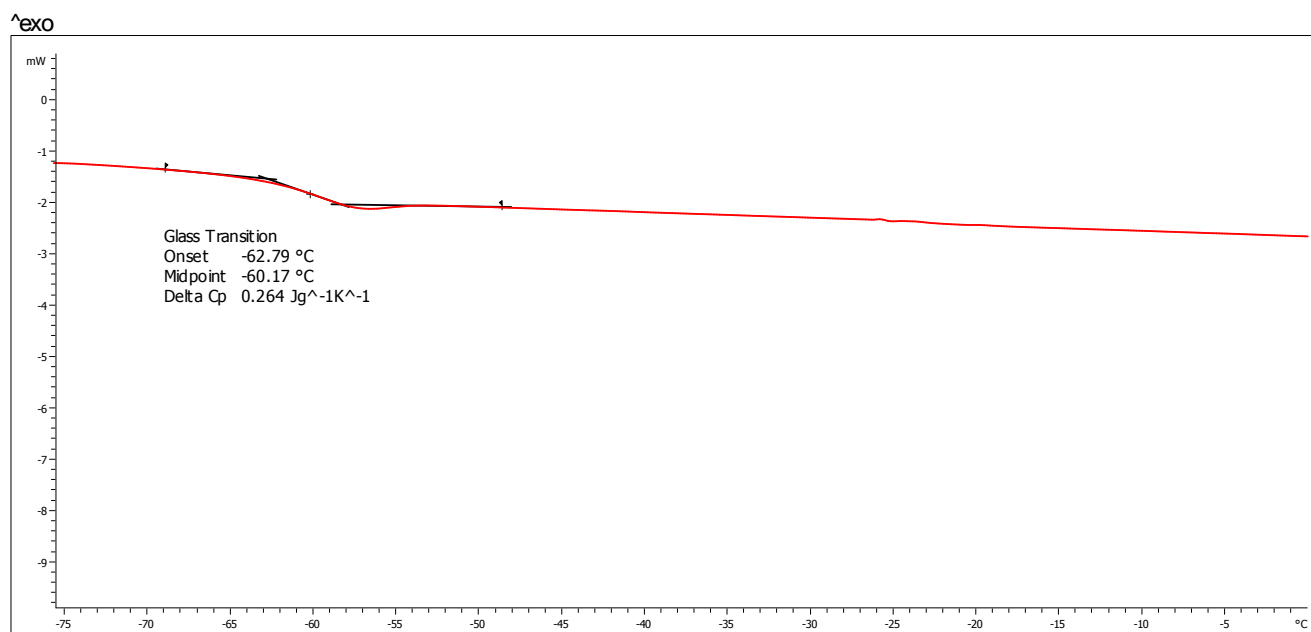
## WATER CONTENT

**Table:** Mass fraction of water  $w$  for the synthesized ILs

ILs	$10^{-6} w$
[MPy][HSO <sub>4</sub> ]	416
[MPyr][HSO <sub>4</sub> ]	405
[MIM][HSO <sub>4</sub> ]	376
[BSMIM][HSO <sub>4</sub> ]	398
[BSPy][HSO <sub>4</sub> ]	391
[BSMIM][CF <sub>3</sub> SO <sub>3</sub> ]	419
[BSPy][CF <sub>3</sub> SO <sub>3</sub> ]	413

## DSC RESULTS

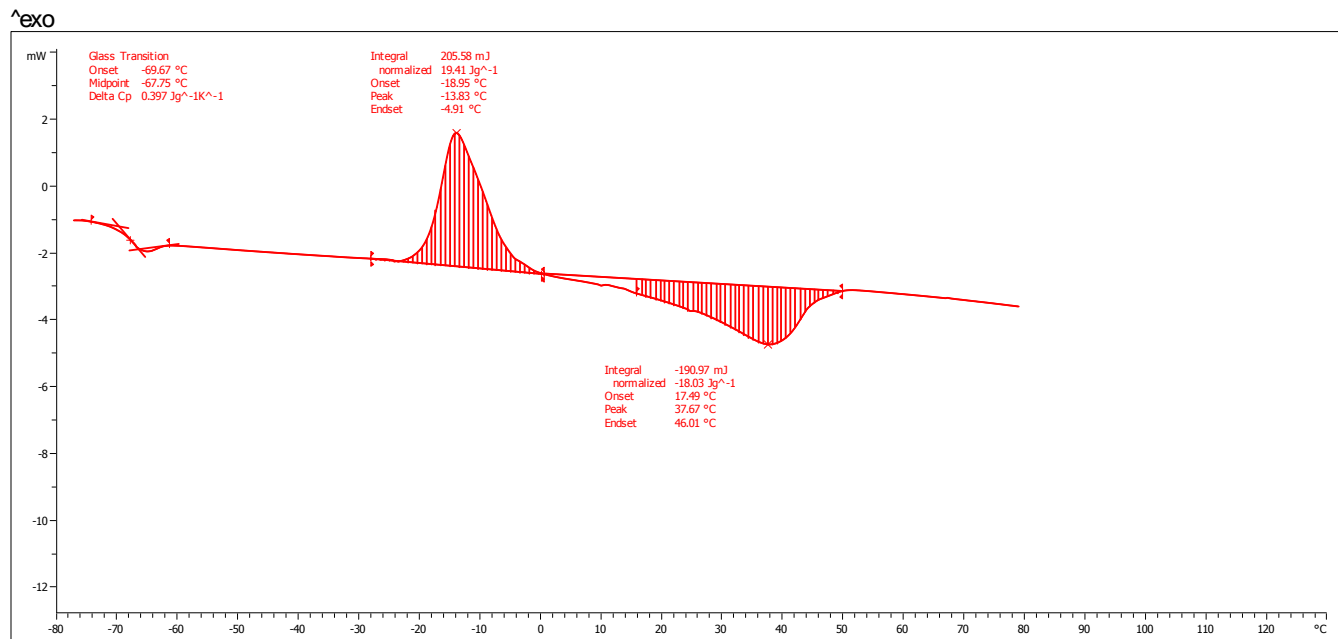
*1*-methyl piperidinium hydrgensulfate [MPip][HSO<sub>4</sub>],



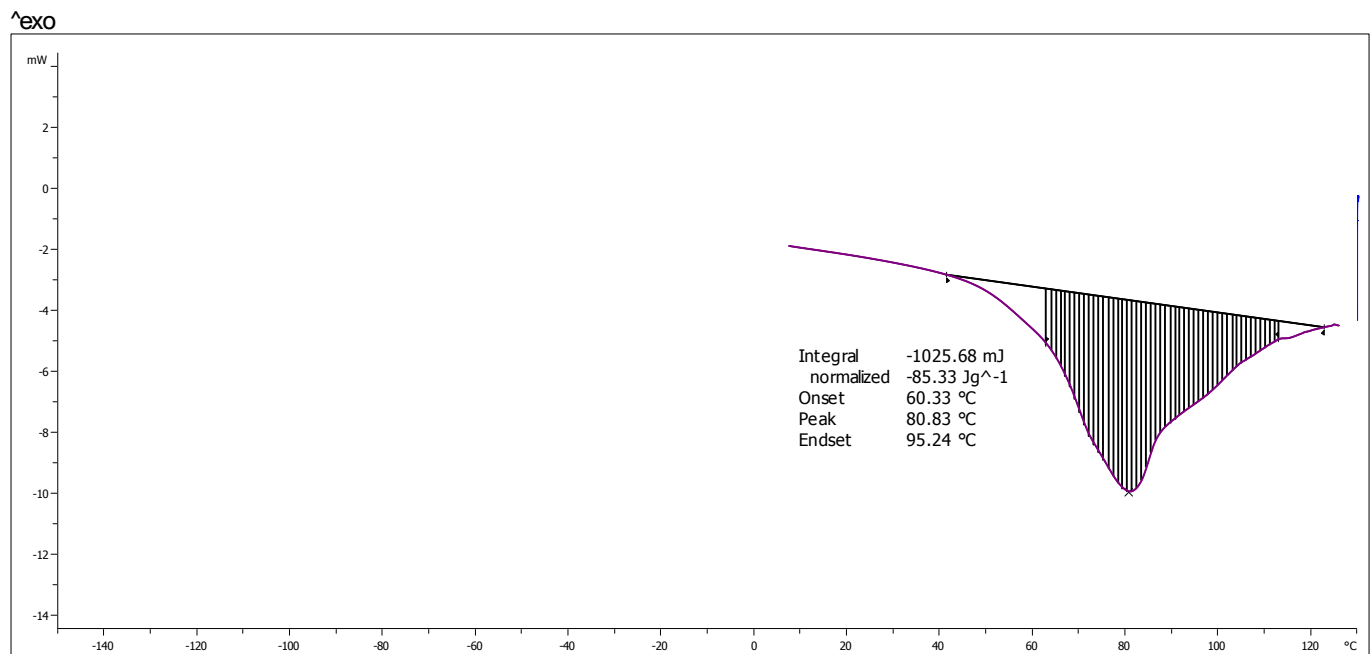
Lab: METTLER

STAR<sup>®</sup> SW9.30

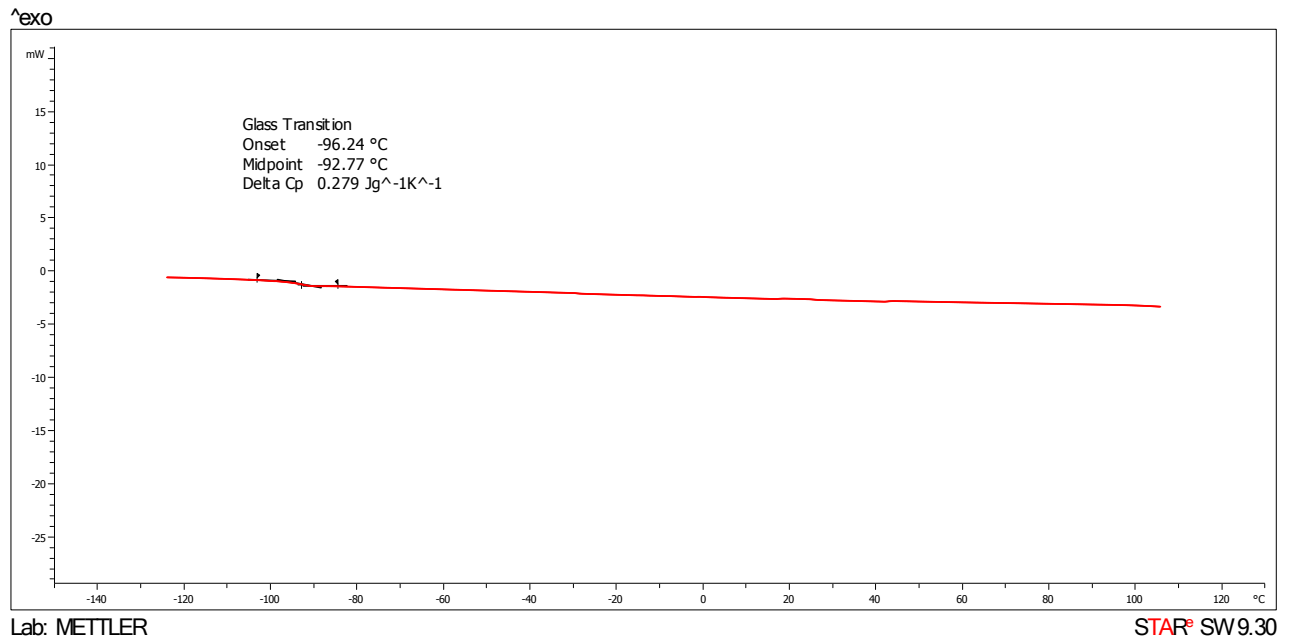
4-methyl pyridinium hydrogensulfate MPy][HSO<sub>4</sub>],



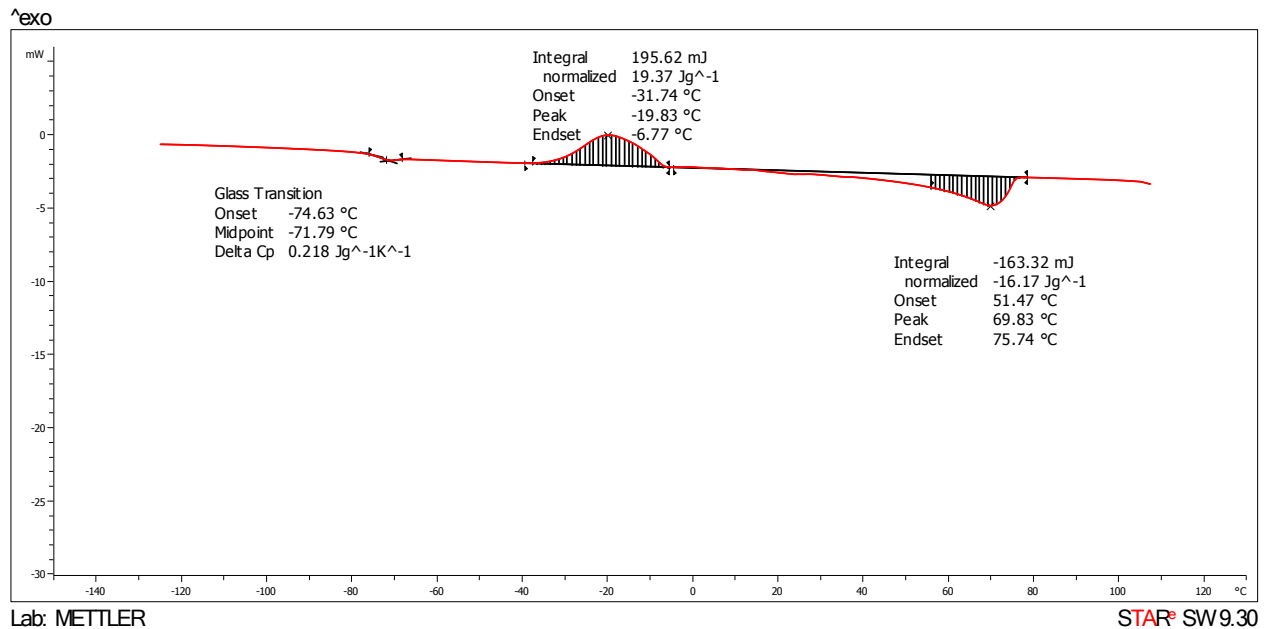
Piperazinium hydrogensulfate [Pi][HSO<sub>4</sub>],



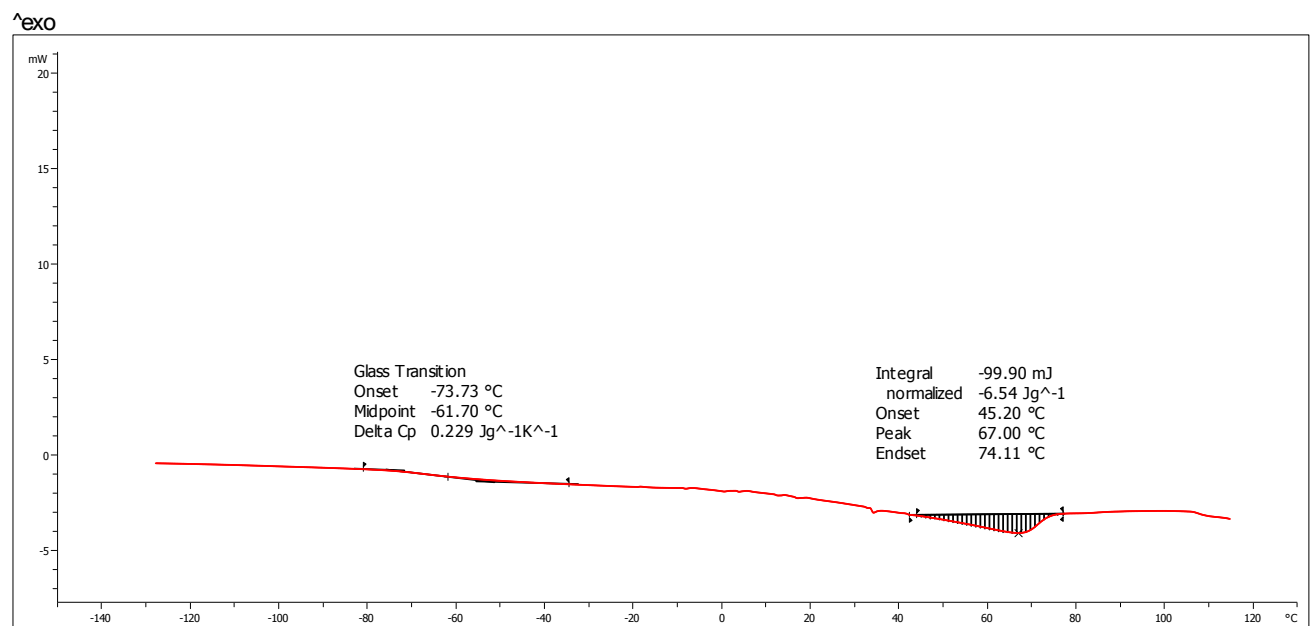
*Methyl pyrrolidinium hydrogensulfate* [MPyr][HSO<sub>4</sub>],



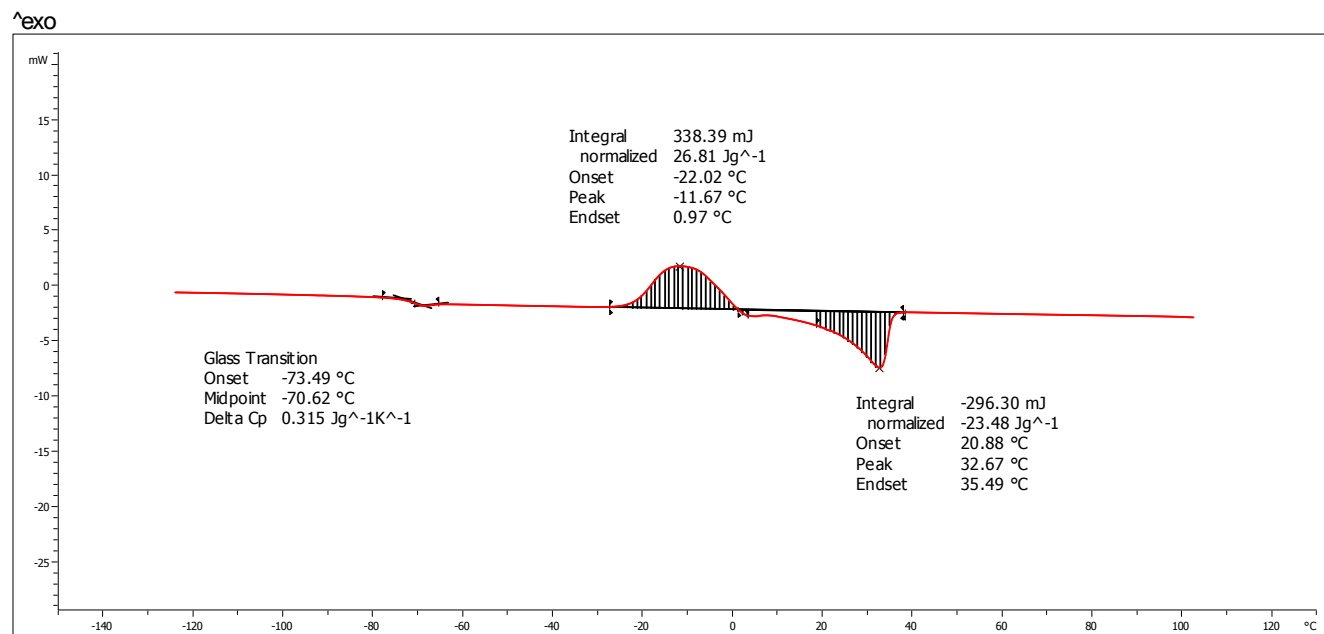
*Ethyl ammonium hydrogen sulfate* [EAm][HSO<sub>4</sub>],



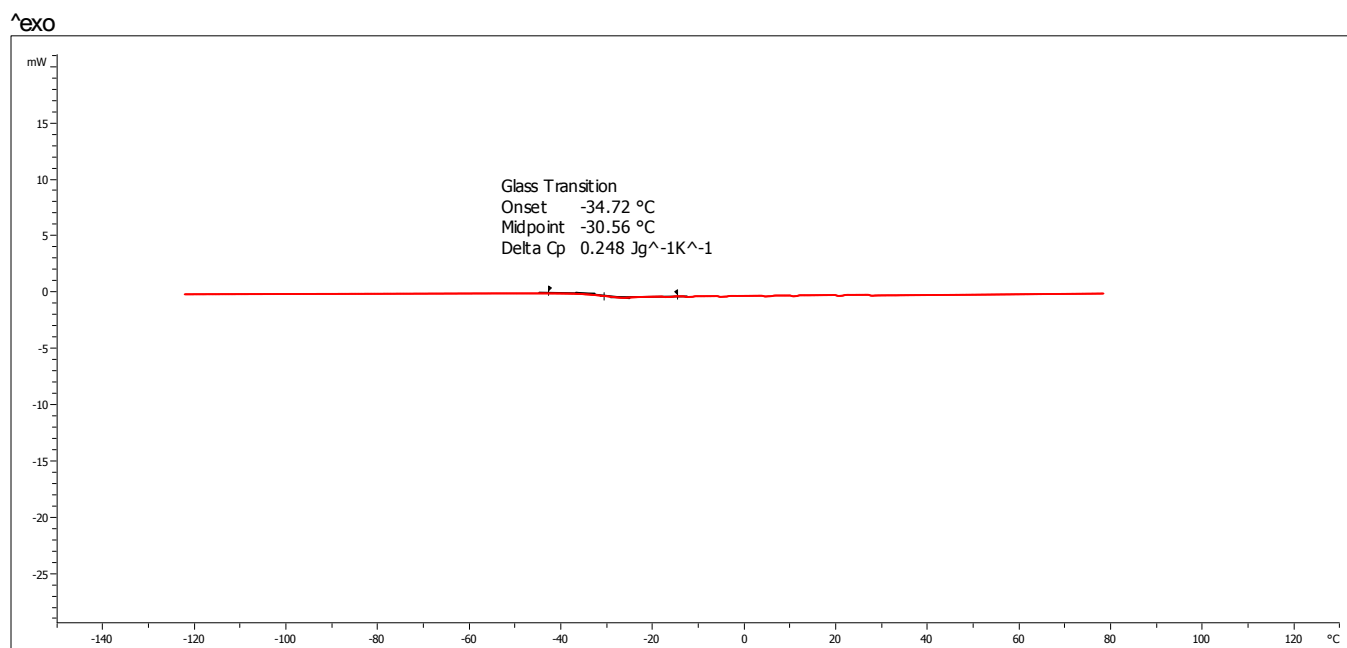
*Pyrazolium hydrogensulfate [P][HSO<sub>4</sub>],*



*1-methyl imidazolium hydrogensulfate [MIM][HSO<sub>4</sub>],*



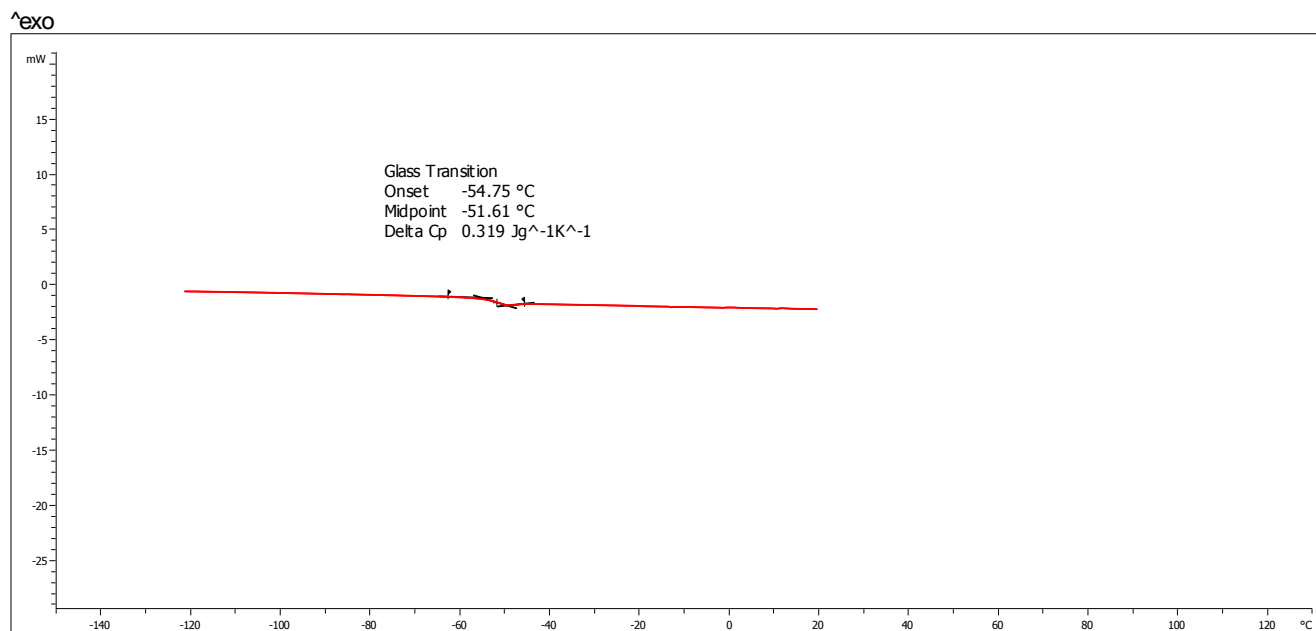
*1, 4 sultone-methyl imidazolium hydrogensulfate* [BSMIM][HSO<sub>4</sub>],



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*1, 4 sultone-methyl imidazolium trifluoromethanesulfonate* [BSMIM][CF<sub>3</sub>SO<sub>3</sub>],

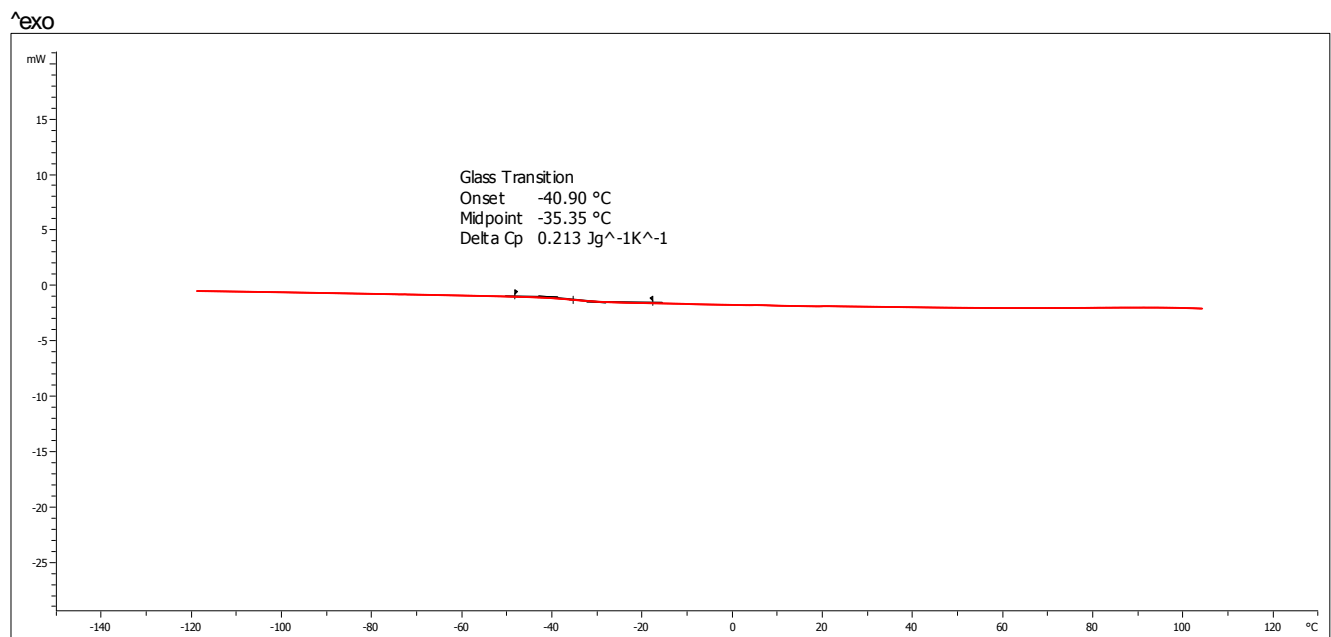


Lab: METTLER

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*1, 4 sultone-pyridinium hydrogensulfate [BSPy][HSO<sub>4</sub>]<sup>-</sup>,*



*1, 4 sultone-pyridinium triflouromethanesulfonate [BSPy][CF<sub>3</sub>SO<sub>3</sub>].*

