Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics

ELECTRONIC SUPPLIMENTARY INFORMATION

to accompany

Novel protic ionic liquids for CO_2 capture

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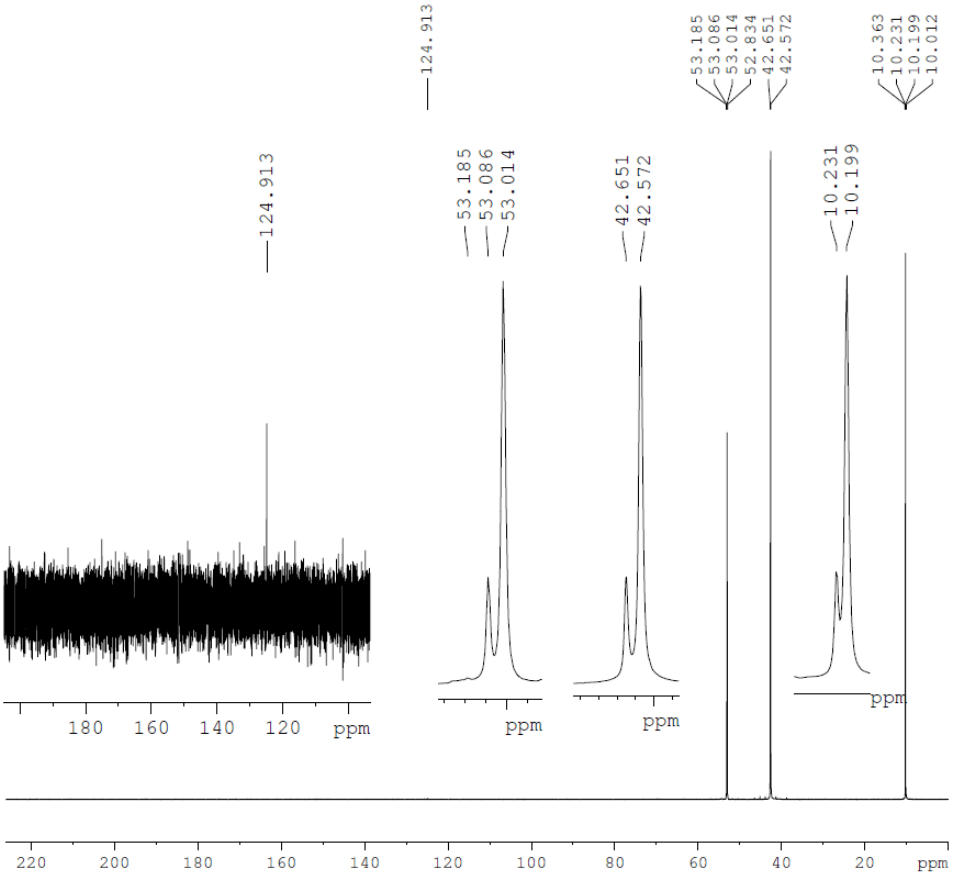
S. No	Systems investigated	Density @ 25 ° C / (g/cm3)	Viscosity @ 25 ° C / (mPa.s) ± 1%
1	MEA : Water(30:70 wt%)	1.01	2.3
2	MEA : Water(30:70 wt%) + CO_2	1.13	3.6
3	DMEDAH acetate : water (1:1 by mole)	1.01	193
4	DMEDAH Formate	1.03	105
5	DMEDAH Formate + CO_2	1.10	397

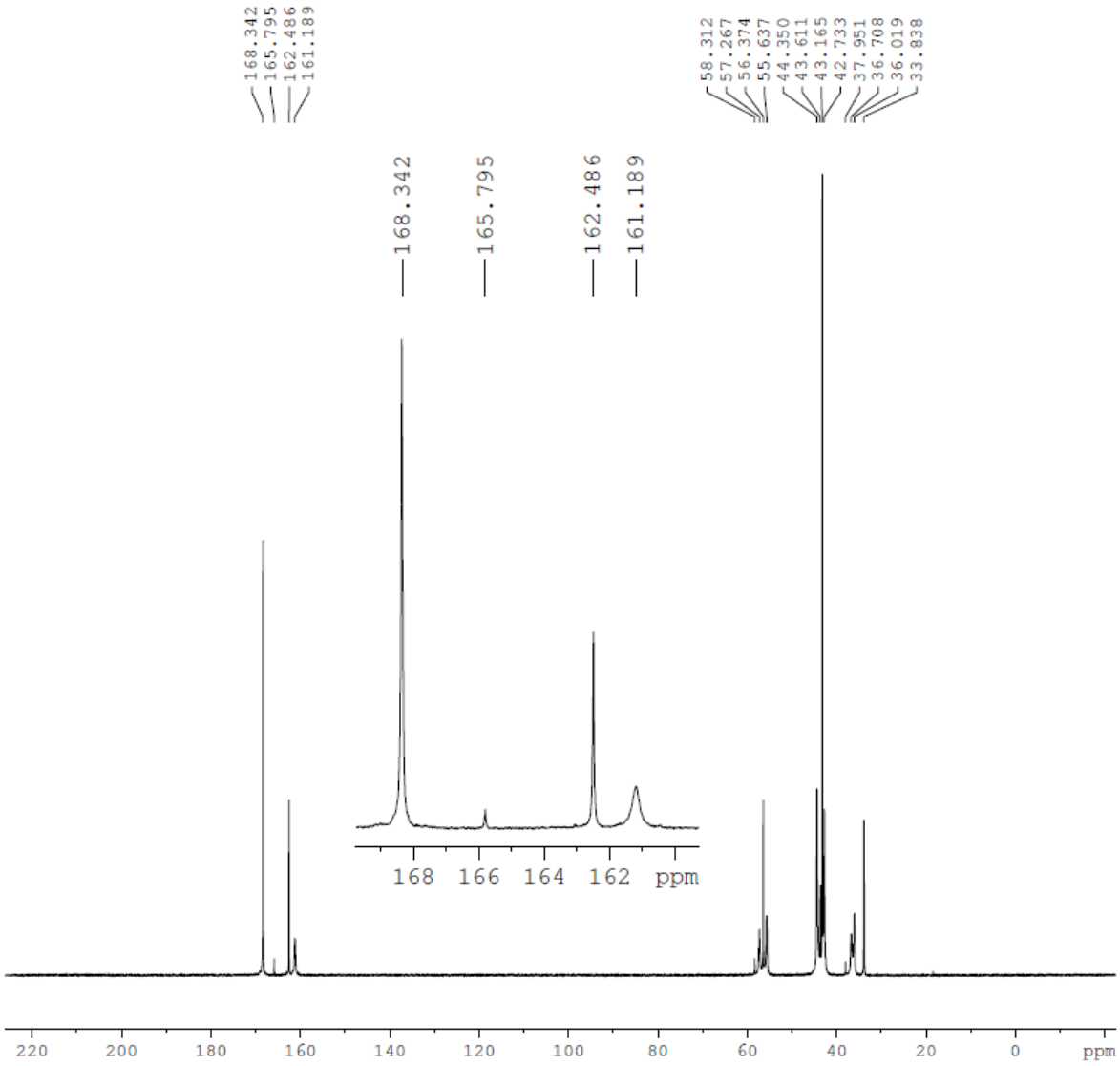
ESI – 1 : Density and Viscosity of ILs – before and after absorption of CO_2

S. No	System	pH
1	MEA : Water(30:70 wt%) 1M solution	11.3
2	MEA : Water(30:70 wt%) + CO_2 1M solution	9.0
3	DMEDAH Formate 1M solution	9.1
4	DMEDAH Formate + CO_2 1M solution	7.3

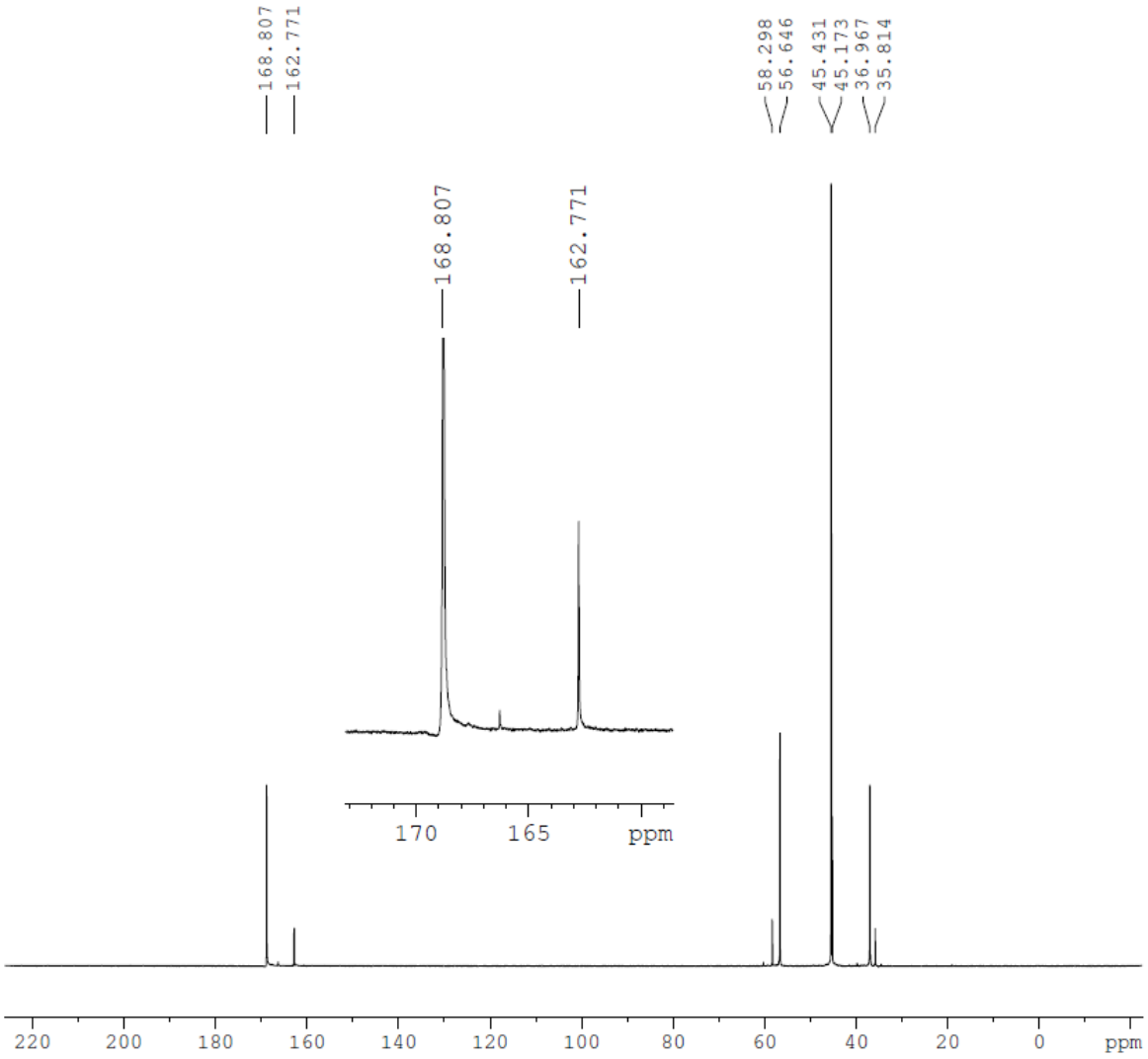
ESI – 2: pH of IL & MEA working solution (30:70 wt%) – before and after absorption of CO_2



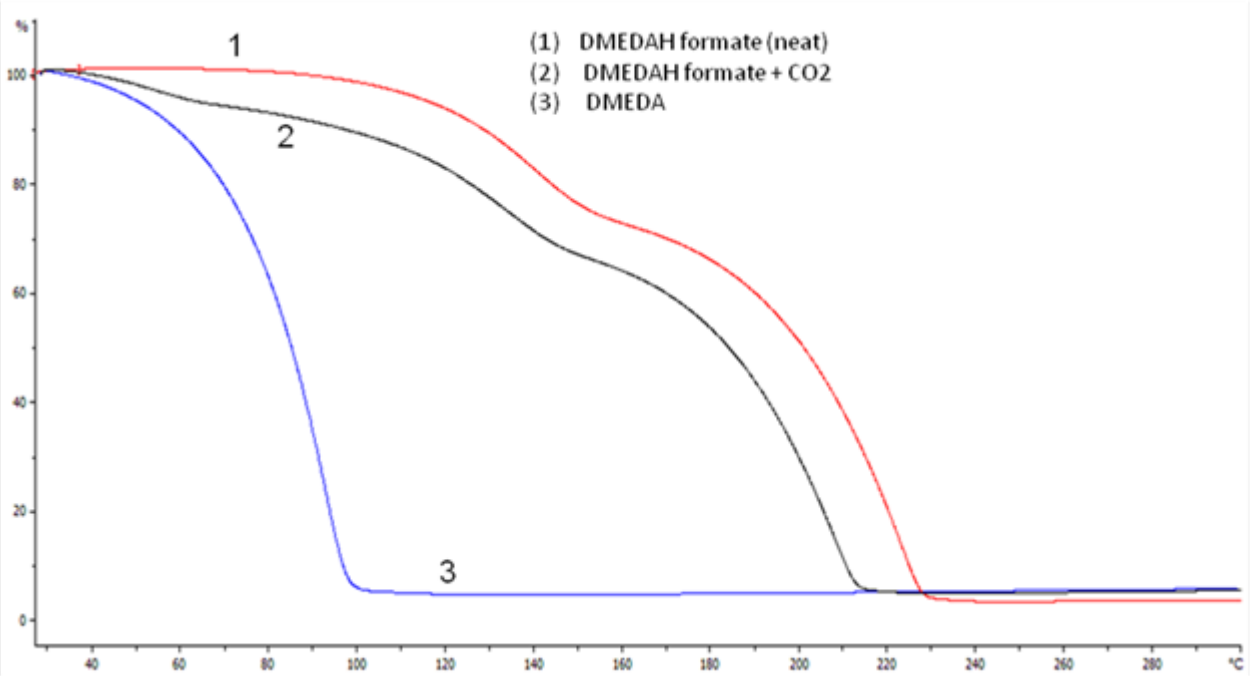
ESI - 3 : ^{13} C NMR Spectrum of N112HCl : Water (70:30 WT%) mixture with CO_2



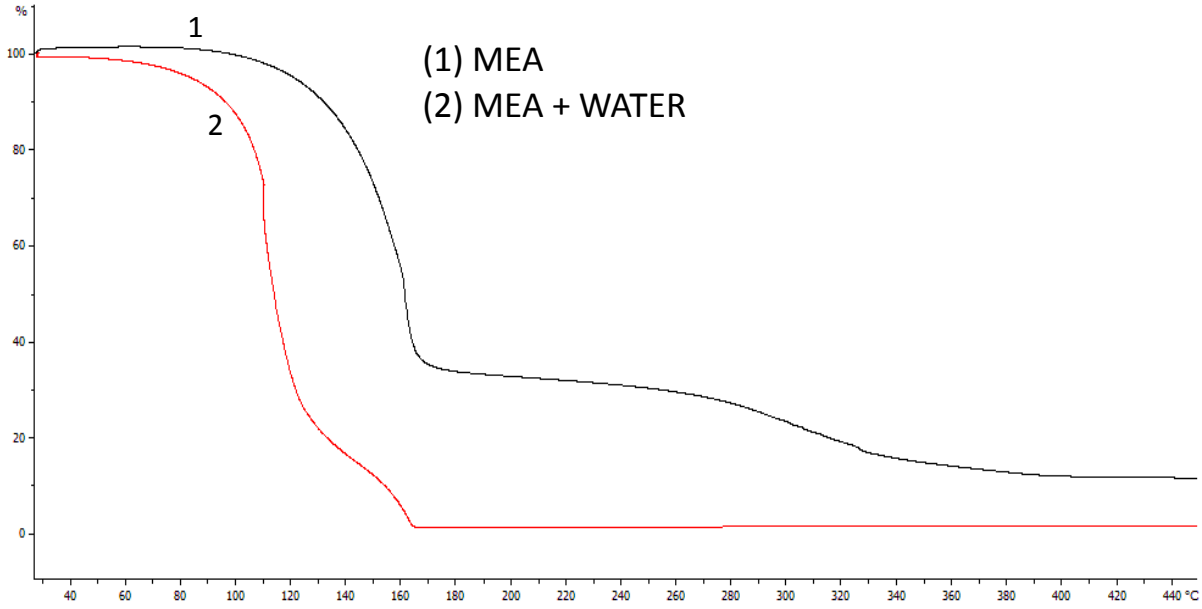
ESI - 4 : ^{13} C NMR Spectrum of DMEDAH Formate with CO_2



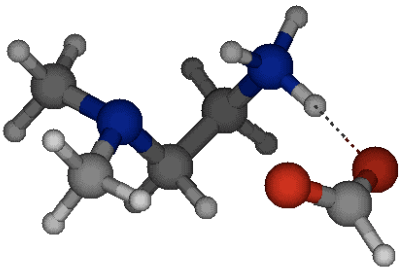
ESI - 5 : ^{13} C NMR Spectrum of neat DMEDAH Formate ionic liquid



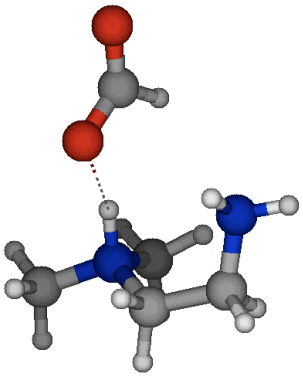
ESI-6 : TGA curves of neat ionic liquid with CO_2 and the corresponding amine



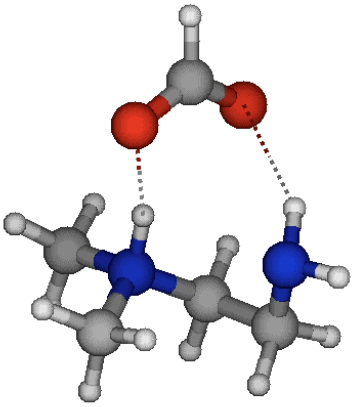
ESI-7 : TGA curves of neat MEA and MEA + Water (30:70 wt %)



IP1



IP2



IP3

ESI-8 : Optimized structures of the isolated ion pairs with the formate anion