**Early Stage Assessment**

**Electronic Supplementary Information (ESI)**

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**Figure 1** Overlay of TGA thermographs of all ILs studied (**1 – 13**)



**Figure 2** TGA thermograph of two aprotic imidazolium ILs and two protic imidazolium ILs. Both showing no significant change in stability





**Figure 3** TGA-MS of protic ammonium hydrogen sulfate ILs. Both show same *m/z* values as imidazolium hydrogen sulfate ILs which are attributed to [H2O]+, [C2H5]+, [CO2]+, [SO]+ and [SO2]+ (*m/z* 18, 29, 44, 48 and 64 respectively)





**Figure 4** TGA-MS of protic [N2200][OAc] (**8**) and protic [HC1im][OAc] (**9**). [N2220][OAc] shows no apparent presence of volatile species despite evaporation prior decomposition. [HC1im][HSO4] shows the recorded TGA-MS must be repeated as it looks unusual