

10.1071/CH16122_AC

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Australian Journal of Chemistry 69(11), 1254-1260

SUPPLEMENTARY MATERIAL

Aggregation Behaviours of Surface-Active Ionic Liquids

1-Alkyl-3-methylimidazolium Bis(2-ethylhexyl)sulfosuccinate

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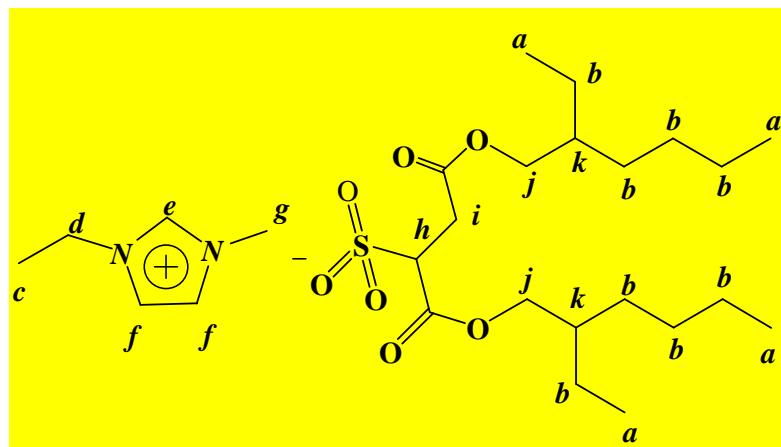
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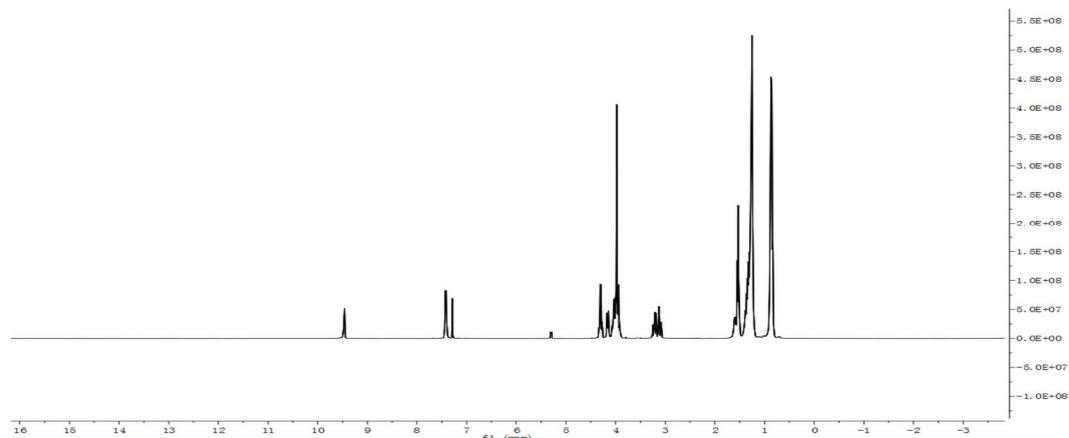
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Figure S1. [C₂mim][AOT]

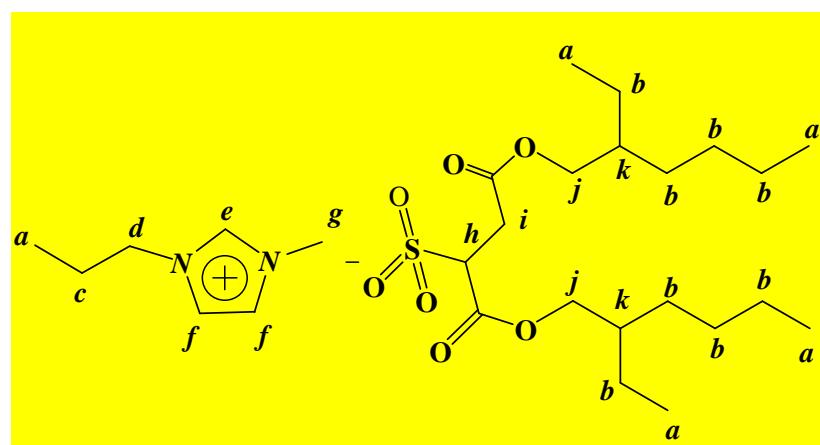


¹H NMR (400MHz, in CDCl₃): δ=9.28 (e, 1H), 7.40-7.44 (f, 2H), 3.94-4.31 (d,g,j,h, 10H), 3.0-3.25 (i, 2H), 1.60 (k, 2H), 1.50-1.55 (c, 3H), 1.05-1.32 (b, 16H), 0.85-0.87 (a, 12H).

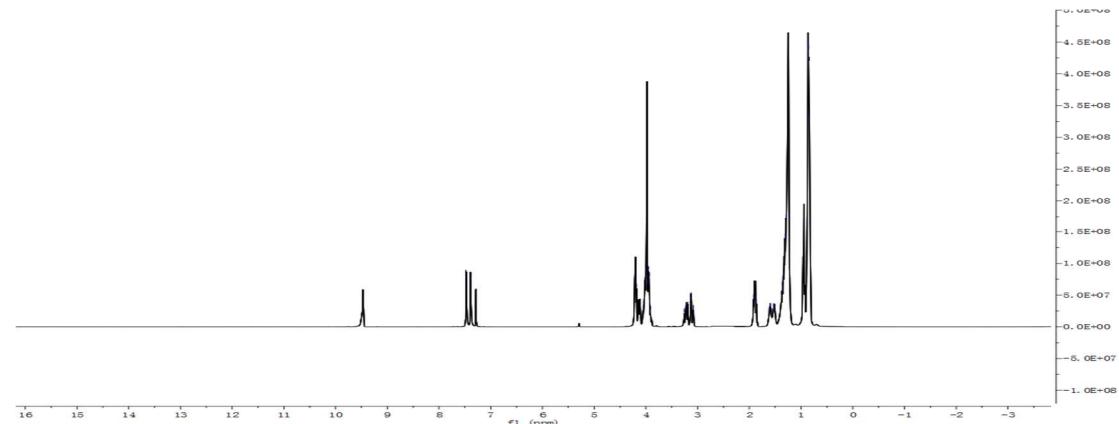


Anal.Calc for [C₂mim][AOT] (% , in mass): C, 58.62; N, 5.26; H, 9.08. Found: C, 58.28; N, 5.05; H, 9.25

Figure S2. [C₃mim][AOT]

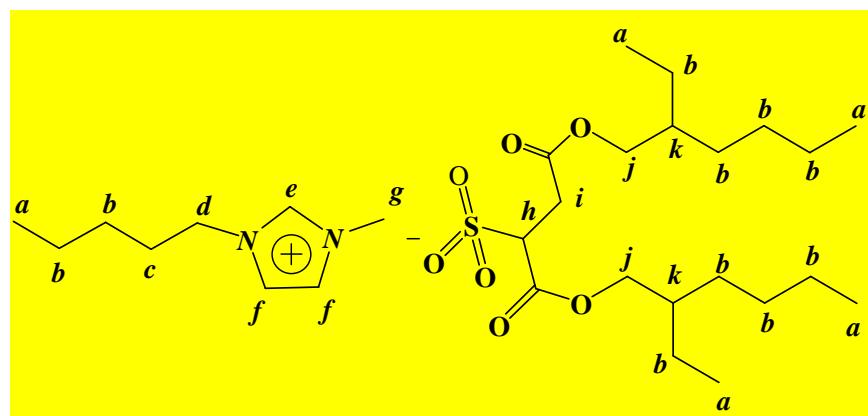


¹H NMR (400MHz, in CDCl₃): δ=9.498 (e, 1H), 7.29-7.48 (f, 2H), 3.91-4.22 (d,g,j,h, 10H), 3.04-3.26 (i, 2H), 1.82 (c, 2H), 1.52 (k, 2H), 1.25-1.38 (b, 22H), 0.82-0.86 (a, 15H).

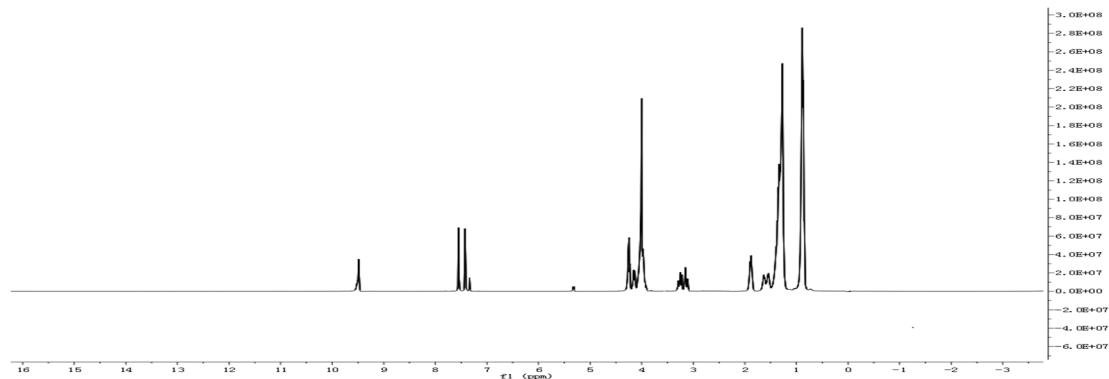


Anal.Calc for [C₃mim][AOT] (% , in mass): C, 59.31; N, 5.12; H, 9.22. Found: C, 58.97; N, 4.97; H, 9.38.

Figure S3. [C₅mim][AOT]

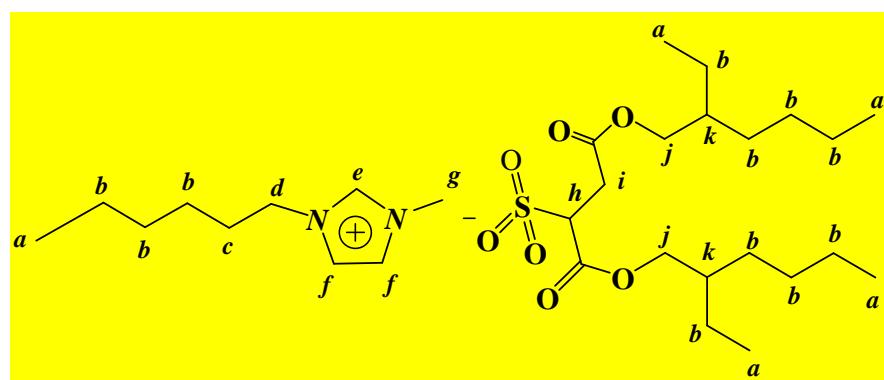


¹H NMR (400MHz, in CDCl₃): δ=9.48 (e, 1H), 7.42-7.53 (f, 2H), 3.96-4.26 (d,g,j,h, 10H), 3.11-3.29 (i, 2H), 1.86-1.89 (c, 2H), 1.53-1.63 (k, 2H), 1.27-1.35 (b, 20H), 0.86-0.89 (a, 15H).

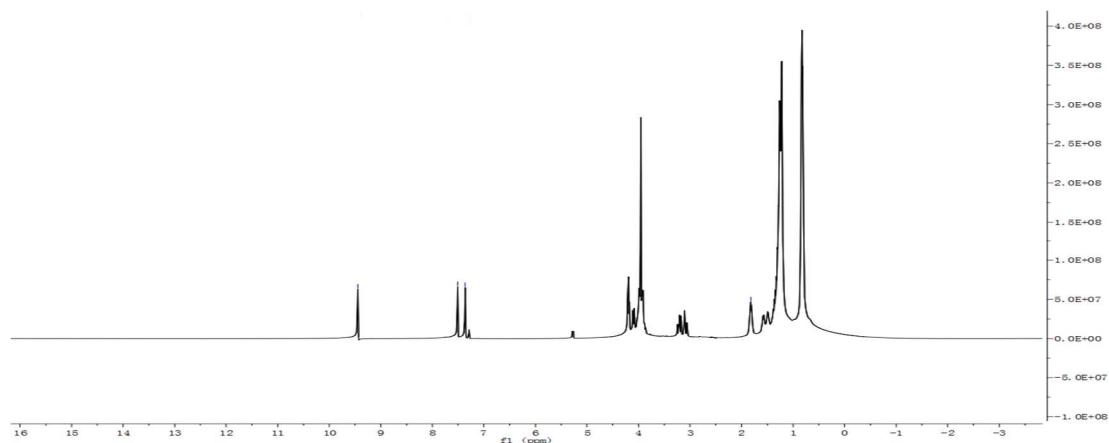


Anal.Calc for [C₅mim][AOT] (% , in mass): C, 60.59; N, 4.87; H, 9.47. Found: C, 60.32; N, 4.66; H, 9.25.

Figure S4. [C₆mim][AOT]

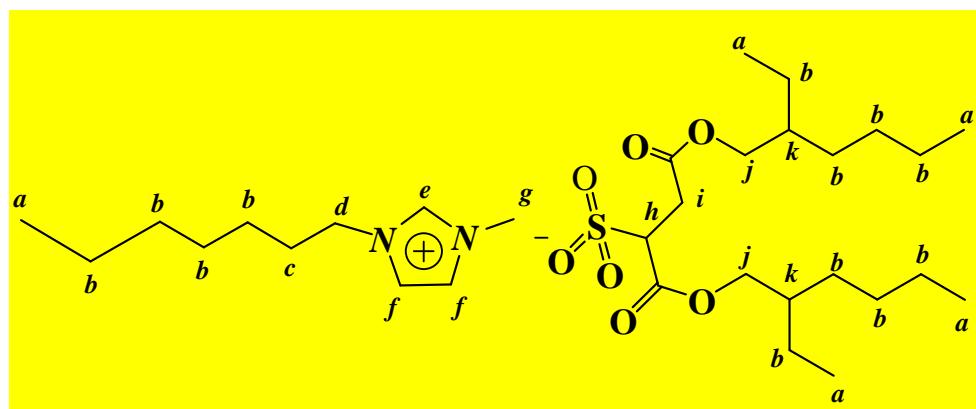


¹H NMR (400MHz, in CDCl₃): δ=9.445 (e, 1H), 7.3-7.51 (f, 2H), 3.88-4.21 (d,g,j,h, 10H), 2.06-3.20 (i, 2H), 1.82 (c, 2H), 1.48-1.59 (k, 2H), 1.22-1.38 (b, 22H), 0.82-0.84 (a, 15H).

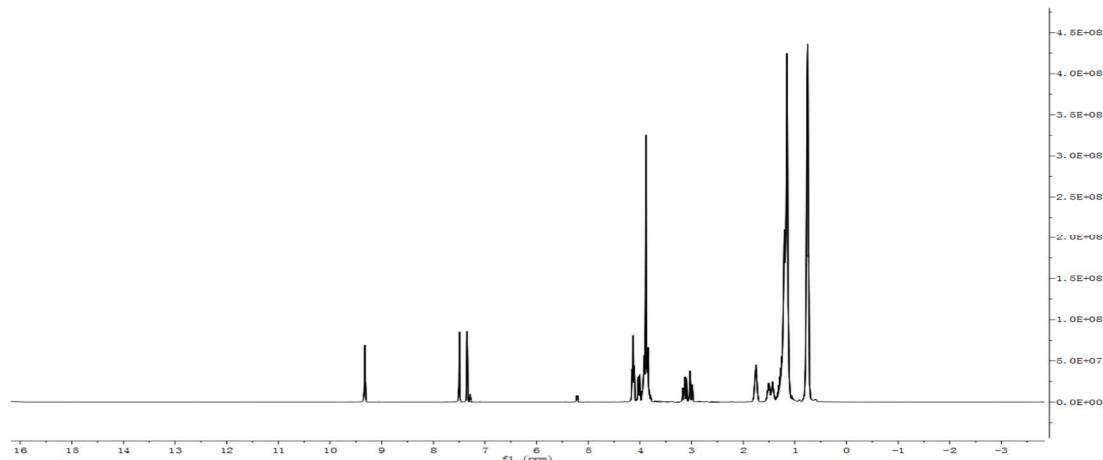


Anal.Calc for [C₆mim][AOT] (% , in mass): C, 61.19; N, 4.76; H, 9.59. Found: C, 60.86; N, 4.78; H, 9.76.

Figure S5. [C₇mim][AOT]



¹H NMR (400MHz, in CDCl₃): δ=9.326 (e, 1H), 7.345-7.49 (f, 2H), 3.84-4.15 (d,g,j,h, 10H), 2.98-3.17 (i, 2H), 1.77 (c, 2H), 1.42- 1.53 (k, 2H), 1.15-1.29 (b, 24H), 0.73-0.77 (a, 15H).



Anal.Calc for [C₇mim][AOT] (% , in mass): C, 61.76; N, 4.65; H, 9.70. Found: C, 61.39; N, 4.43; H, 9.88.

Figure S6. Volume base size distributions of for [C_nmim][AOT] aqueous solutions at two-fold CAC except for C₄mim-AOT aqueous solution, where the concentration is 1.5-fold CAC. (a) to (f) refer to [C₂mim][AOT], [C₃mim][AOT], [C₄mim][AOT], [C₅mim][AOT], [C₆mim][AOT], and [C₇mim][AOT] system, respectively.

