

Supporting Information

FT-IR and ¹H NMR Spectral of ILs

a) [EMI][N(CN)₂]

IR (KBr): 3151.1s, 3107.1s, 2989.1s(V_{C-H}), 2235.5s, 2196.0s, 2134.8vs (V_{CN}) cm^{-1} .

¹H NMR, (600MHz, d₆-DMSO): δ 9.07(s, N-CH-N), 7.75(s, CH), 7.66(s, CH), 4.19(q, N-CH₂), 3.84(s, N-CH₃), 1.42(t, CH₃) ppm.

b) [BMI][N(CN)₂]

IR (KBr): 3149.8w, 3106.6w, 2962.5m, 2936.6w, 2875.0w (V_{C-H}), 2237.6s, 2197.2 s, 2135.7 vs (V_{CN}) cm^{-1} .

¹H NMR, (600MHz, d₆-DMSO): δ 9.15(s, N-CH-N), 7.79(s, N-CH-C), 7.72(s, C-CH-N), 4.36(t, N-CH₂-CH₂-CH₂-CH₃), 4.05(s, N-CH₃), 1.93(m, N-CH₂-CH₂-CH₂-CH₃), 1.40(m, N-CH₂-CH₂-CH₂-CH₃), 0.96(t, N-CH₂-CH₂-CH₂-CH₃) ppm.

c) [EtMe₂S][N(CN)₂]

IR (KBr): 3016.6m, 2931.2w (V_{C-H}), 2240.9s, 2199.3s, 2138.1vs (V_{CN}) cm^{-1} .

¹H NMR, (600MHz, d₆-DMSO): δ 3.28(q, S-CH₂-CH₃), 2.84(s, S-(CH₃)₂), 1.34(t, S-CH₂-CH₃) ppm.

d) [S2][N(CN)₂]

IR (KBr): 2977.2w, 2950.7w, 2879.9w (V_{C-H}), 2236.4s, 2196.4s, 2135.0vs (V_{CN}) cm^{-1} .

¹H NMR, (600MHz, d₆-DMSO): δ 3.74(m, S-CH₂-CH₂-), 3.65(m, S-CH₂-CH₂-), 3.48(m, S-CH₂-CH₃), 2.47(m, S-CH₂-CH₂-), 2.40(m, S-CH₂-CH₂-), 1.53(t, S-CH₂-CH₃) ppm.

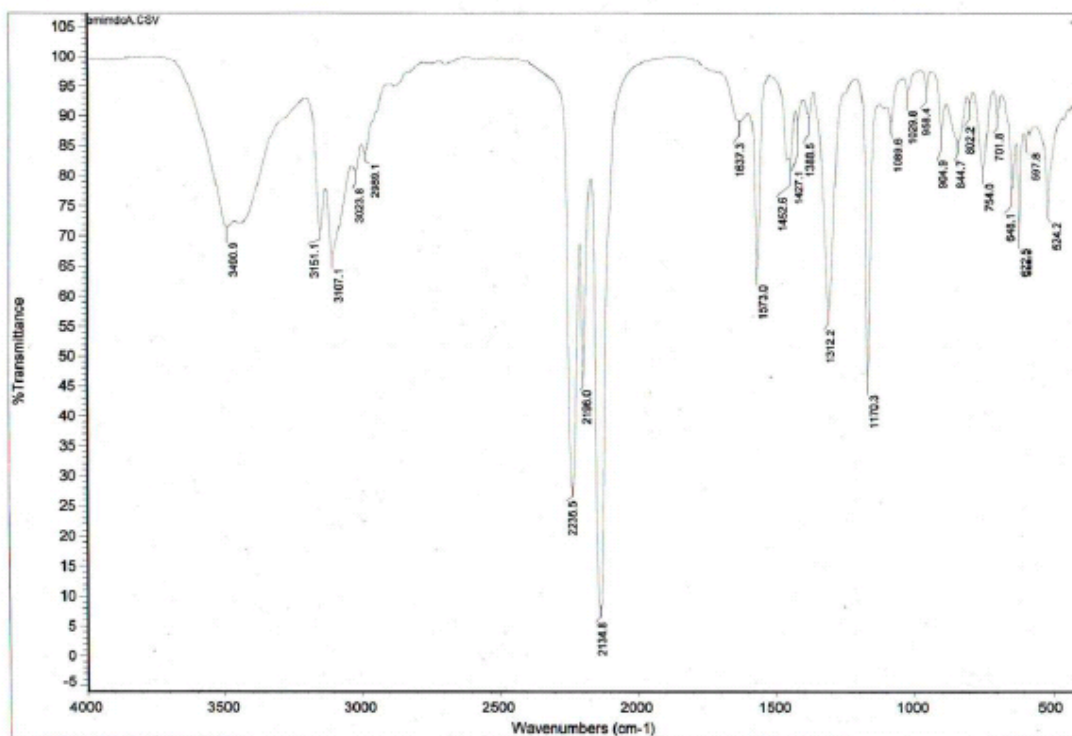


Fig. 1 FT-IR for [EMI][N(CN)₂]

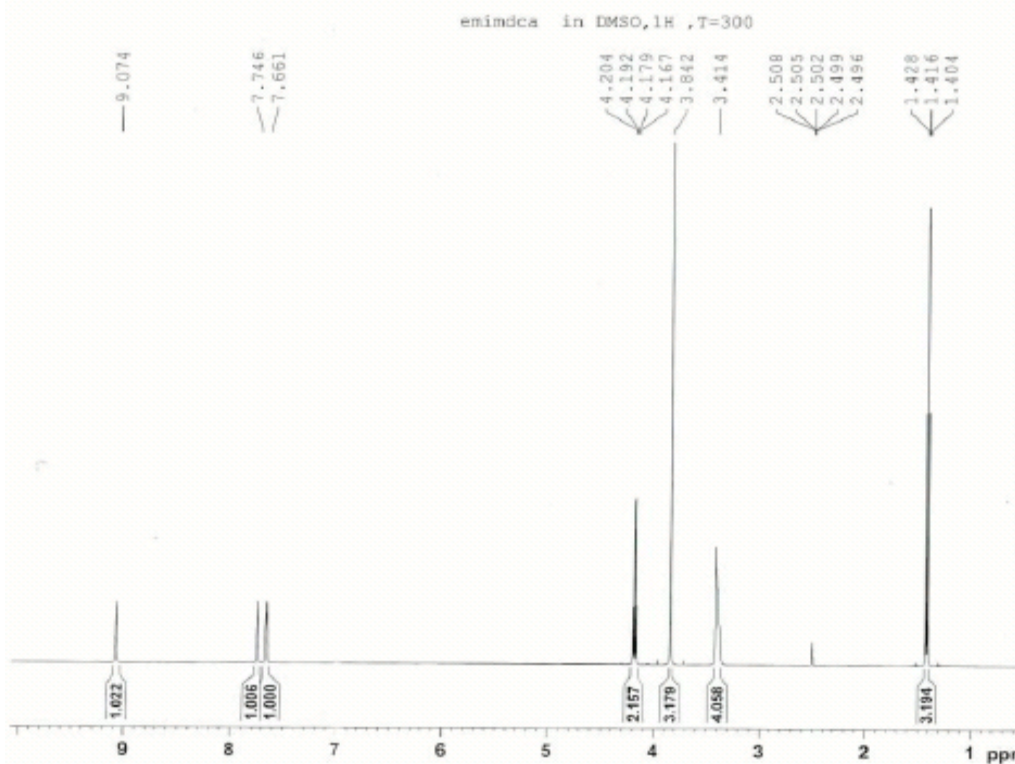


Fig. 2 ¹H NMR for [EMI][N(CN)₂]

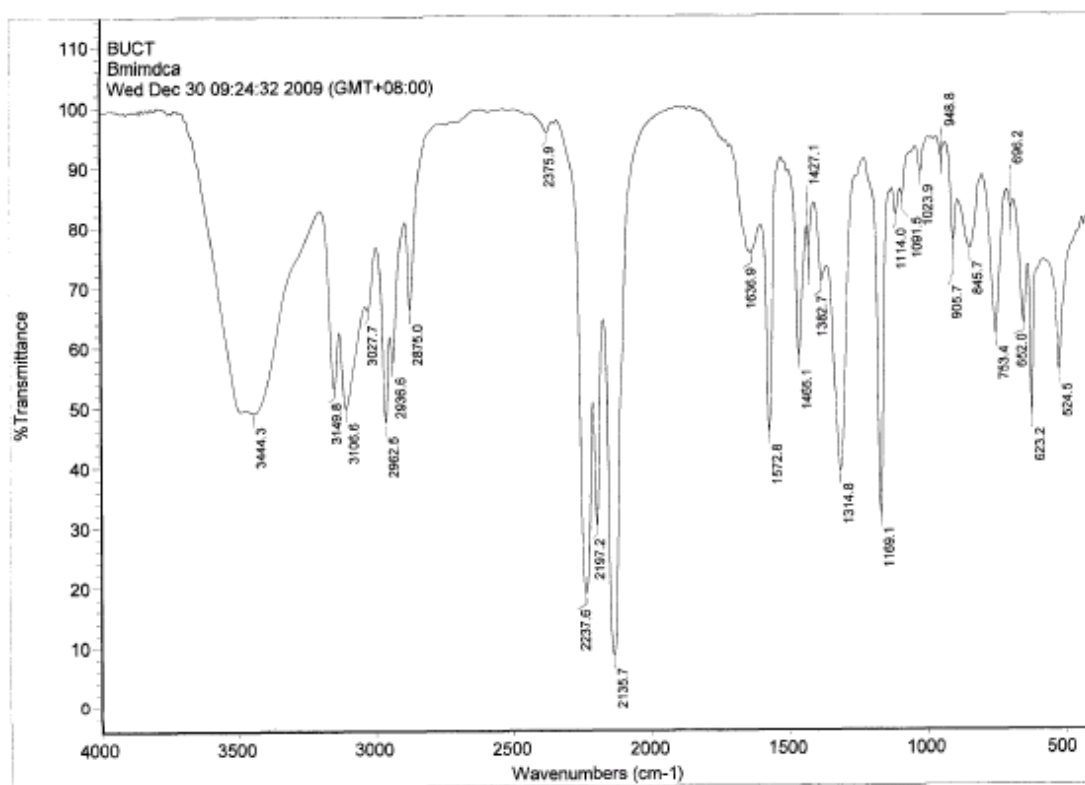


Fig. 3 FT-IR for [BMI][N(CN)₂]

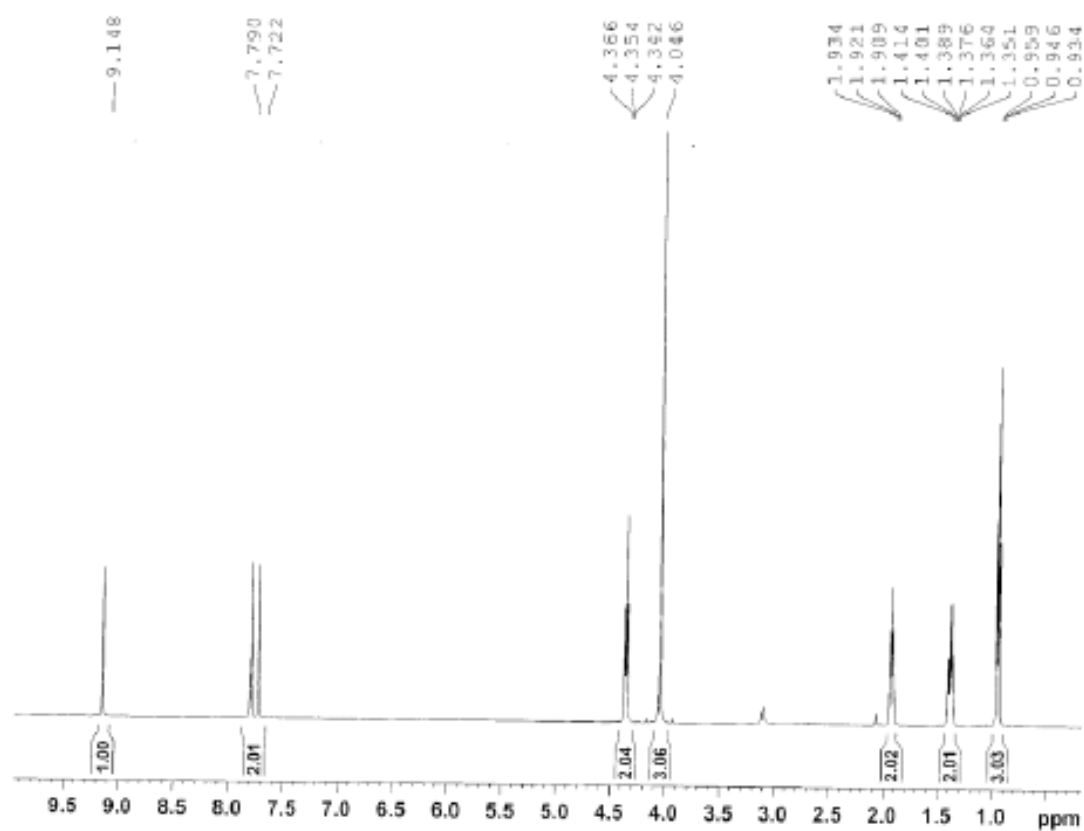


Fig. 4 ¹H NMR for [BMI][N(CN)₂]

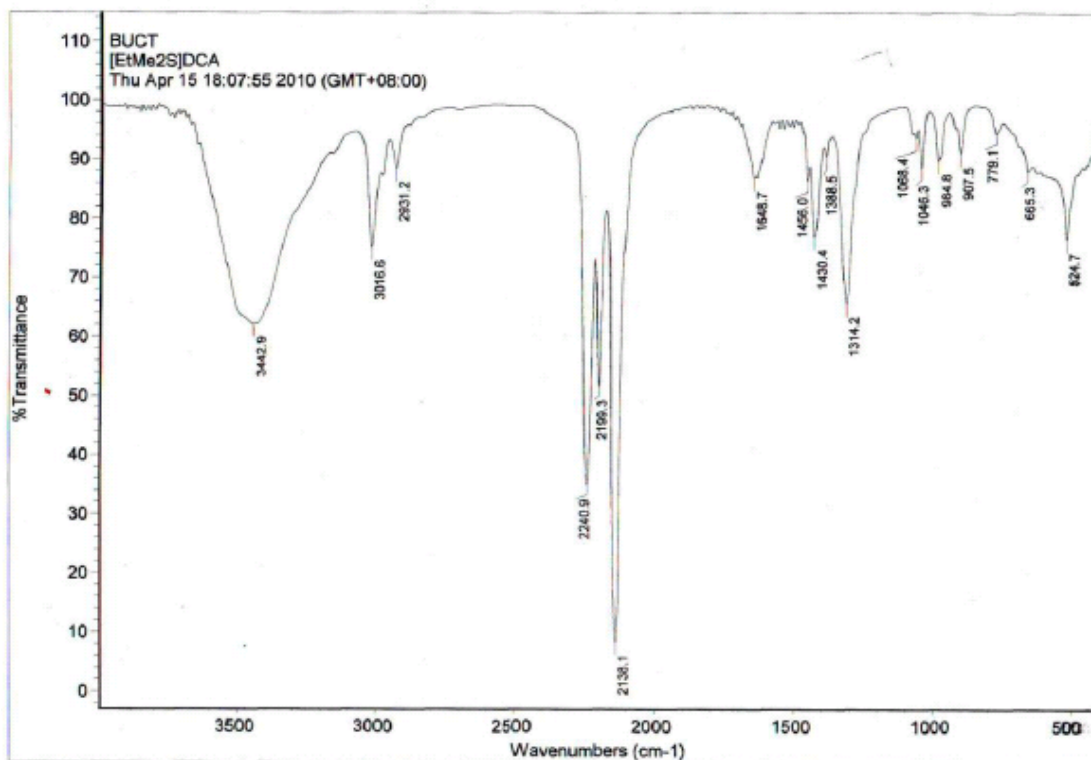


Fig. 5 FT-IR for [EtMe₂S][N(CN)₂]

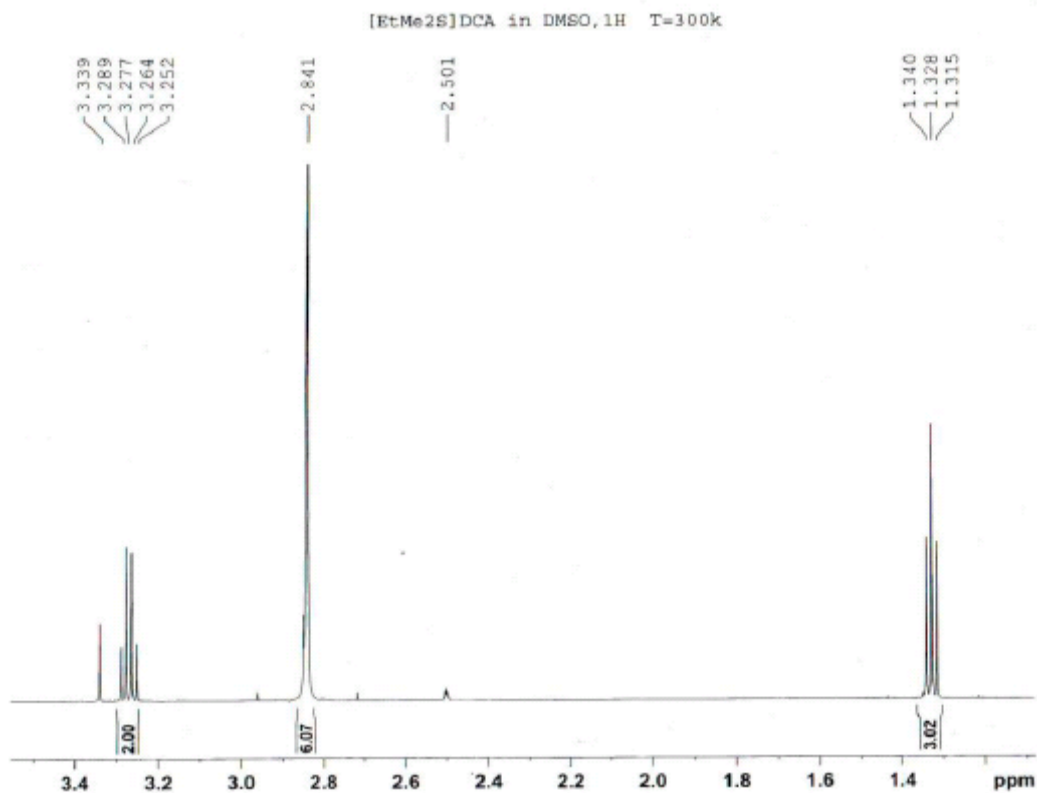


Fig. 6 ¹H NMR for [EtMe₂S][N(CN)₂]

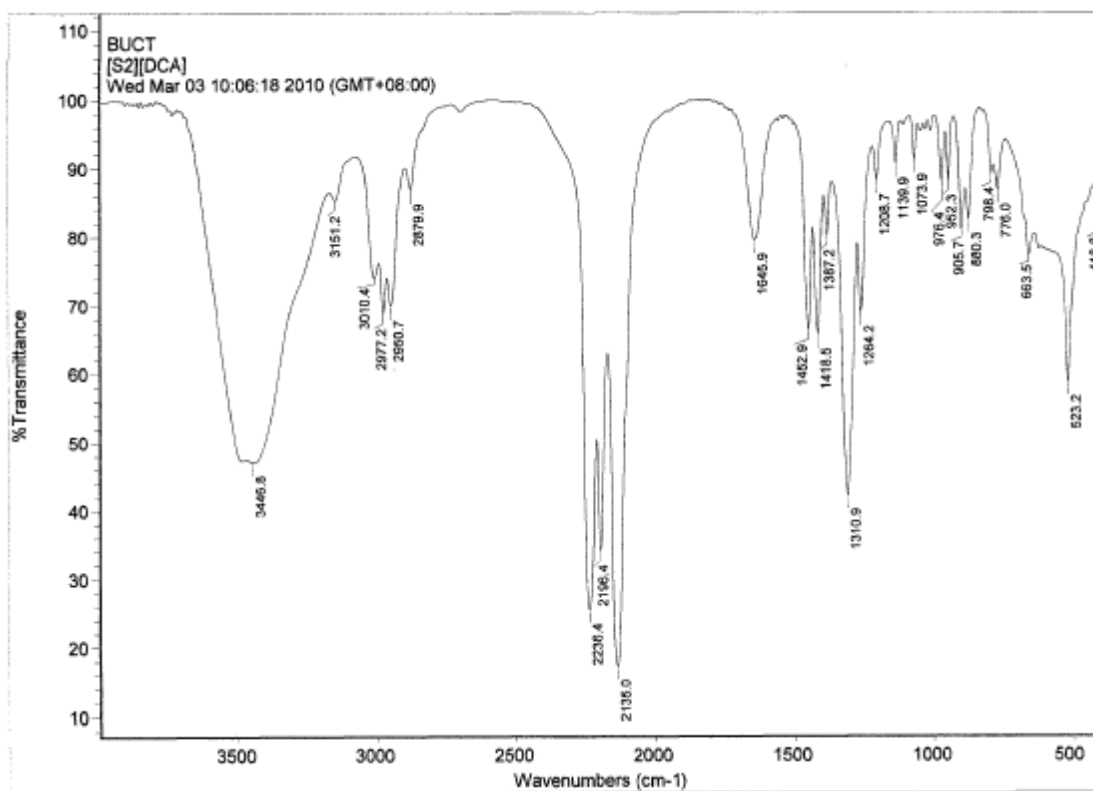


Fig. 7 FT-IR for [S2][N(CN)₂]

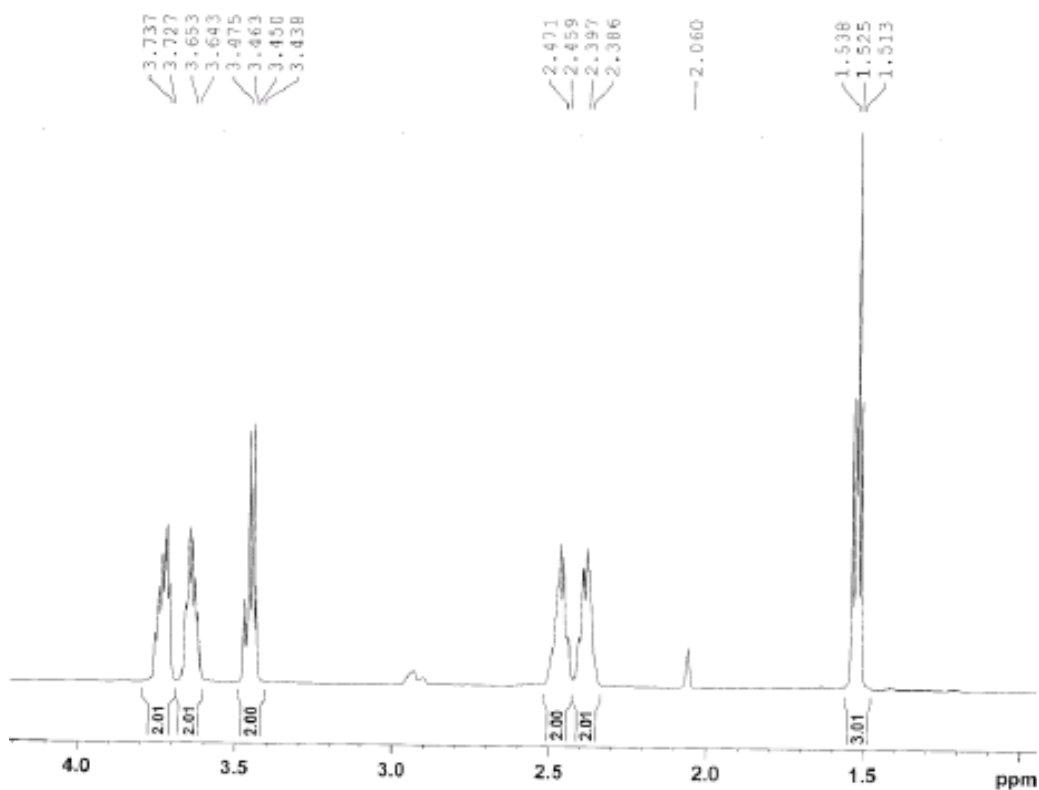


Fig. 8 ¹H NMR for [S2][N(CN)₂]