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Boron and nitrogen-rich carbons from ionic liquid precursors with tailorable surface properties

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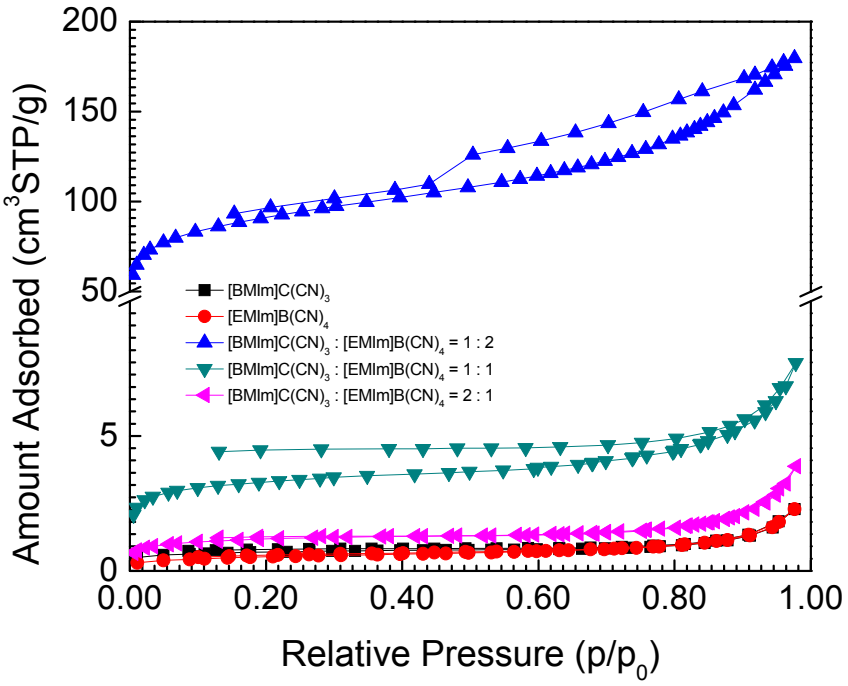
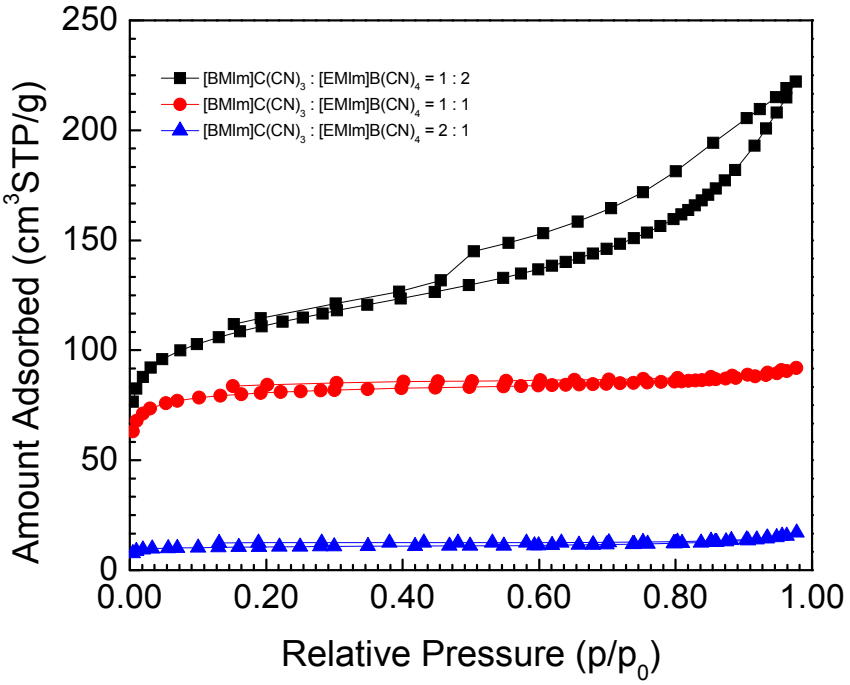
Table S1. Adsorption and physical properties of carbon materials from [BMIm][$C(CN)_3$] and [EMIm][$B(CN)_4$] TSILs at various temperatures.

IL ratio		Yield (%)	S_{BET} (m^2 g^{-1})
[BMIm][$C(CN)_3$]	[EMIm][$B(CN)_4$]		
1		37.2[a]	2.4
1		22.5[c]	64.8
	1	46.4[a]	1.9
	1	37.7[c]	13.6
1	2	37.8[a]	319
1	1	40.6[a]	11.5
2	1	41.7[a]	4.2
1	2	34.4[b]	388
1	1	35.5[b]	279
2	1	36.2[b]	37
1	2	29.6[c]	537
1	1	29.2[c]	188
2	1	28.9[c]	124
1	2	25.8[d]	286
1	1	15.8[d]	290
2	1	21.2[d]	97

[a] Temperature = 450°C, ramp rate = 10°C min^{-1}, dwell time = 2 h.
[b] Temperature = 550°C, ramp rate = 10°C min^{-1}, dwell time = 1 h.
[c] Temperature = 800°C, ramp rate = 10°C min^{-1}, dwell time = 1 h.
[d] Temperature = 900°C, ramp rate = 10°C min^{-1}, dwell time = 1 h.



(a)



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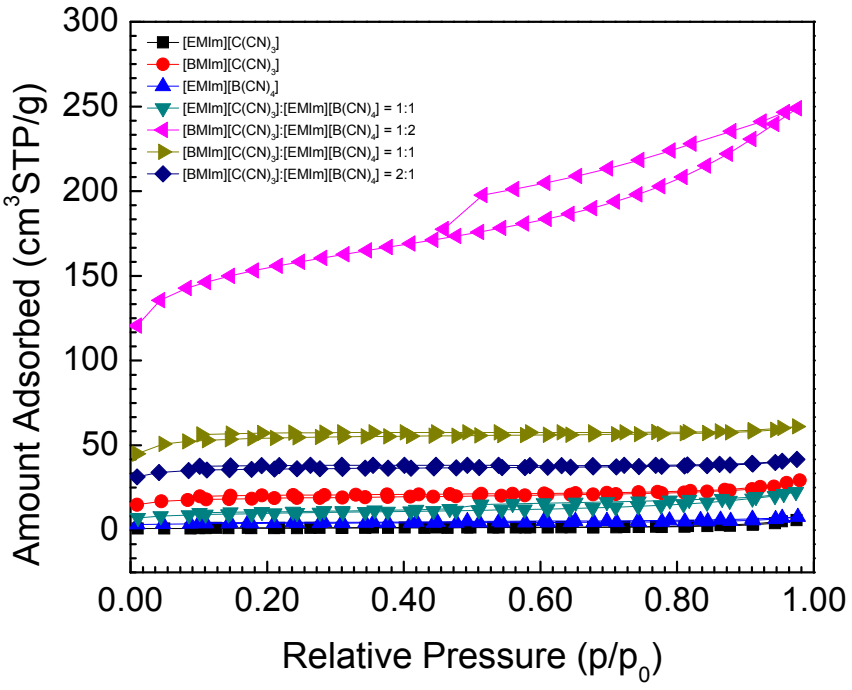
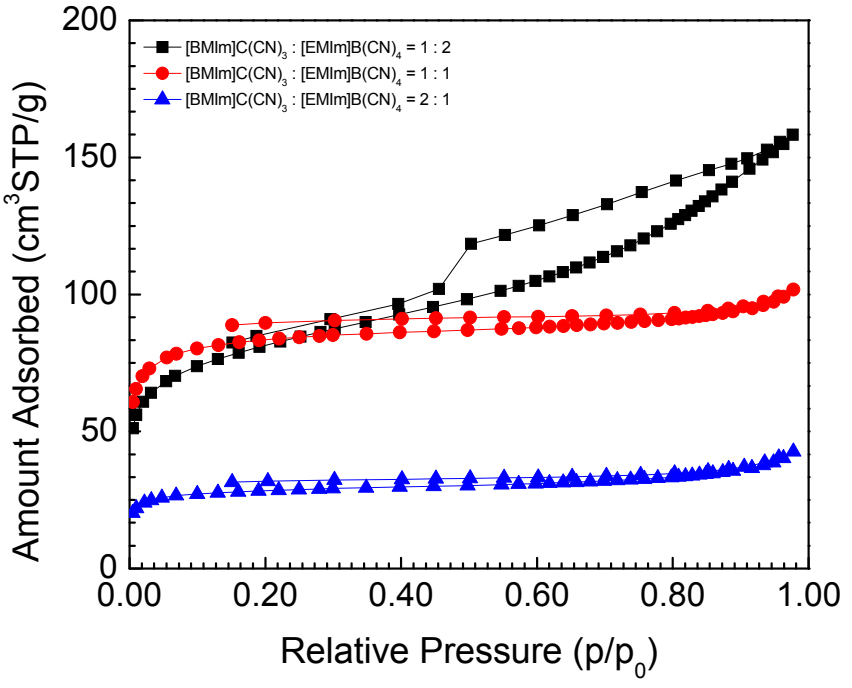


(c)



(d)

Fig. S1. Nitrogen adsorption isotherms for various carbonaceous materials prepared from pure [EMIm][$B(CN)_4$] and [BMIm][$C(CN)_3$] and their mixtures carbonized at 450ºC (a), 550ºC (b), 800ºC (c) and 900ºC (d) under flowing nitrogen atmosphere.

Table S2. Elemental analysis results from EDX for carbonaceous materials derived from $[BMIm][C(CN)_3]$ and $[EMIm][B(CN)_4]$ after carbonizations at various temperatures.

Sample		T (ºC)[a]	B (wt. %)[b]	C (wt. %)[c]	N (wt. %)[d]
$[EMIm][B(CN)_4]$	$[BMIm][C(CN)_3]$				
1	0	800	46.7	45.8	7.5
0	1	800	-	84.2	15.8
1	1	800	31.1	62.8	6.1
1	2	800	23.5	71.6	4.9
2	1	450	32.5	58.1	9.4
2	1	550	23.6	69.0	7.4
2	1	800	30.5	64.2	5.3
2	1	900	32.0	64.0	4.0

[a]Carbonization temperature.
Weight percentages from the K lines for [b]boron, [c]carbon, and [d]nitrogen.