

Supplementary Material

Rationalizing the role of the anion in CO₂ capture and conversion using imidazolium-based ionic liquid modified mesoporous silica

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Table S1. FTIR absorption bands of SILs (wavenumber, cm⁻¹).

<i>Assignments ν (cm⁻¹)</i>	<i>Samples*</i>			
	<i>ILCLM50</i>	<i>ILTF2NM50</i>	<i>ILPF6M50</i>	<i>ILBF4M50</i>
ν Si-OH silanol	3364	3553	3325	3426
ν C-H methyl and methylene	2945	2934	2958	2959
	2840	2853	2927	-----
ν Si-O	1632	1631	1634	1634
ν C-C and C-N imidazolium ring	1570	1572	1577	1574
	1462	1460	1464	1461
ν Si-O-Si siloxane	1186	1182	1140	1134
ν R ₃ Si-O-SiR ₃ disiloxane	1070	1047	1060	1064
ν Cl ⁻	805			
ν N-S		837		
ν C-S		791		
ν C-F		742		
ν P-F			840	
ν B-F				1236
δ_{as} B-F				1062

*Names of the samples indicate the nature of the anion (Tf₂N⁻, PF₆⁻ or BF₄⁻ and the percentage of immobilized IL).

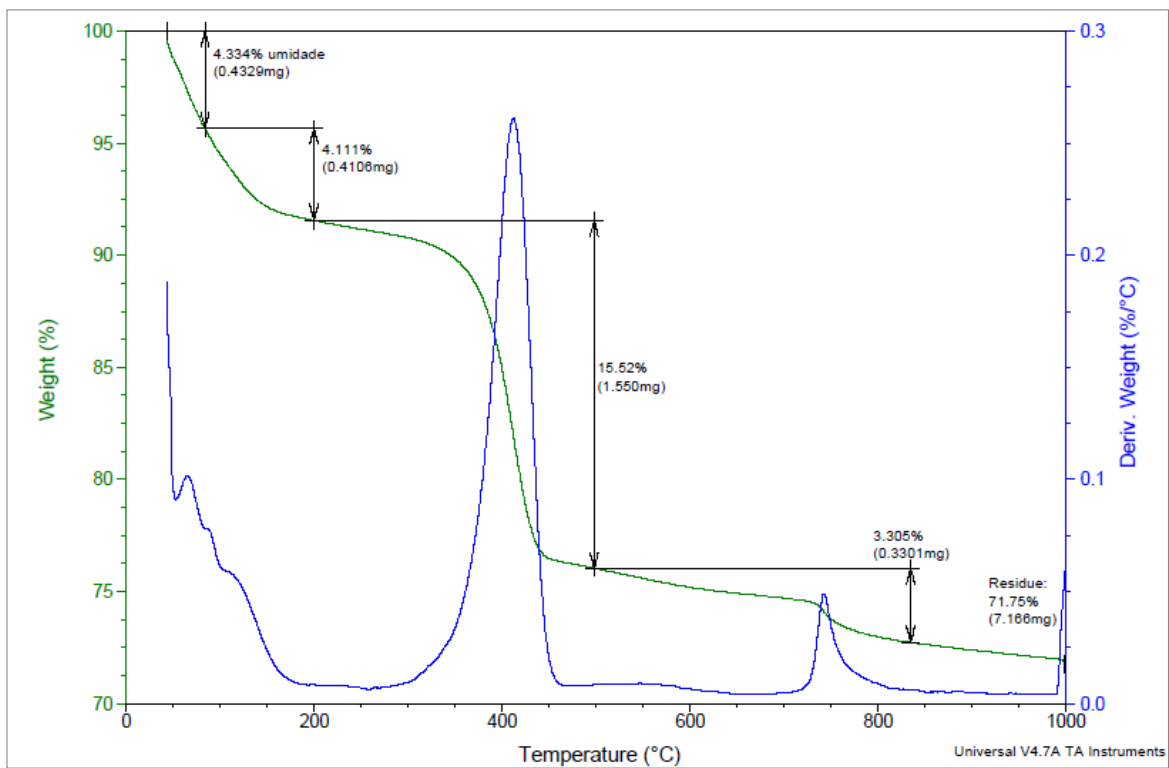
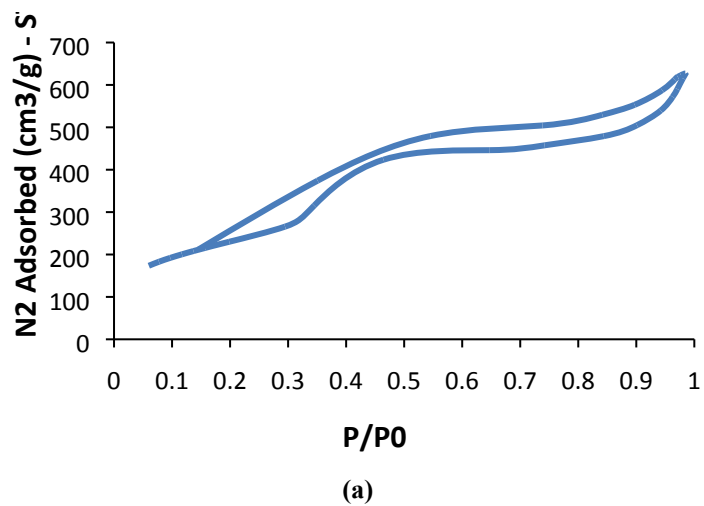
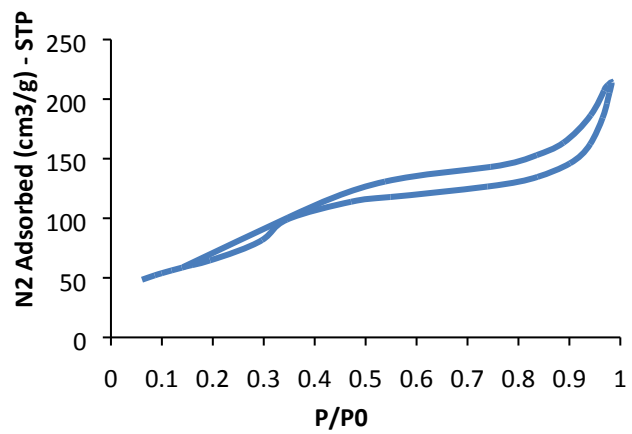
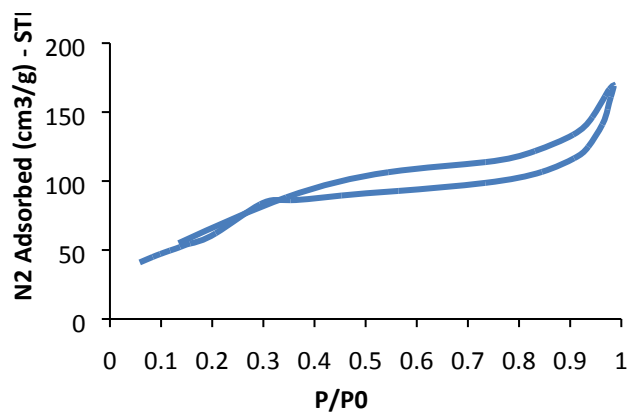


Figure S1. TGA thermogram for ILT₂NM₅₀.





(b)



(c)

Figure S2. N₂ adsorption-desorption isotherms at 77 K on different samples. MCM-41 with 45.24 Å pores (a); ILCLM50 with 53.07 Å pores (b); and ILTF2NM50 with 42.62 Å pores (c).