

Supporting Information

Roles of cation and anion of amino acid anion-functionalized ionic liquids immobilized into a porous support for CO₂ capture

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Table S1. Surface areas and pore volumes of PMMA, [EMIM][Lys]-PMMA, [P₄₄₄₄][Lys]-PMMA and [P₄₄₄₄][Gly]-PMMA with various loadings.

type	BET surface area	BJH adsorption cumulative
	[m ² /g]	pore volume [cm ³ /g]
PMMA	527	1.12
[EMIM][Lys]-PMMA (10%)	327	0.93
[EMIM][Lys]-PMMA (50%)	38	0.35
[P ₄₄₄₄][Lys]-PMMA (10%)	256	0.99
[P ₄₄₄₄][Lys]-PMMA (50%)	37	0.32
[P ₄₄₄₄][Gly]-PMMA (10%)	378	1.04
[P ₄₄₄₄][Gly]-PMMA (30%)	118	0.69
[P ₄₄₄₄][Gly]-PMMA (50%)	26	0.25
[P ₄₄₄₄][Gly]-PMMA (70%)	9.0	0.02

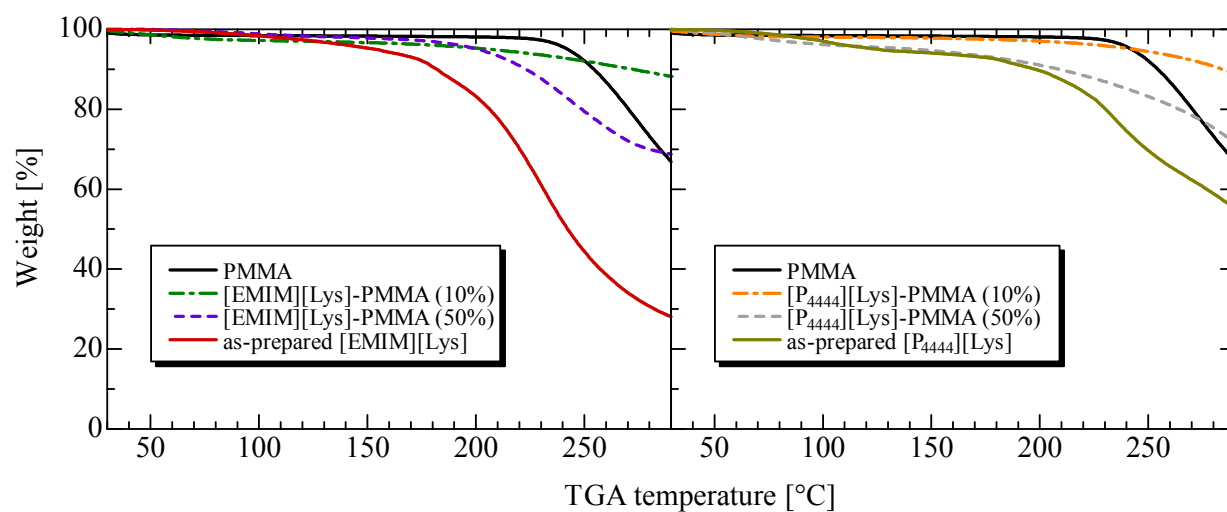


Figure S1. TGA curves of PMMA, [EMIM][Lys]-PMMA and [P₄₄₄₄][Lys]-PMMA with 10 and 50 wt% loadings, and as-prepared [EMIM][Lys] and [P₄₄₄₄][Lys] under N₂ atmosphere at a heating rate of 10 °C /min.

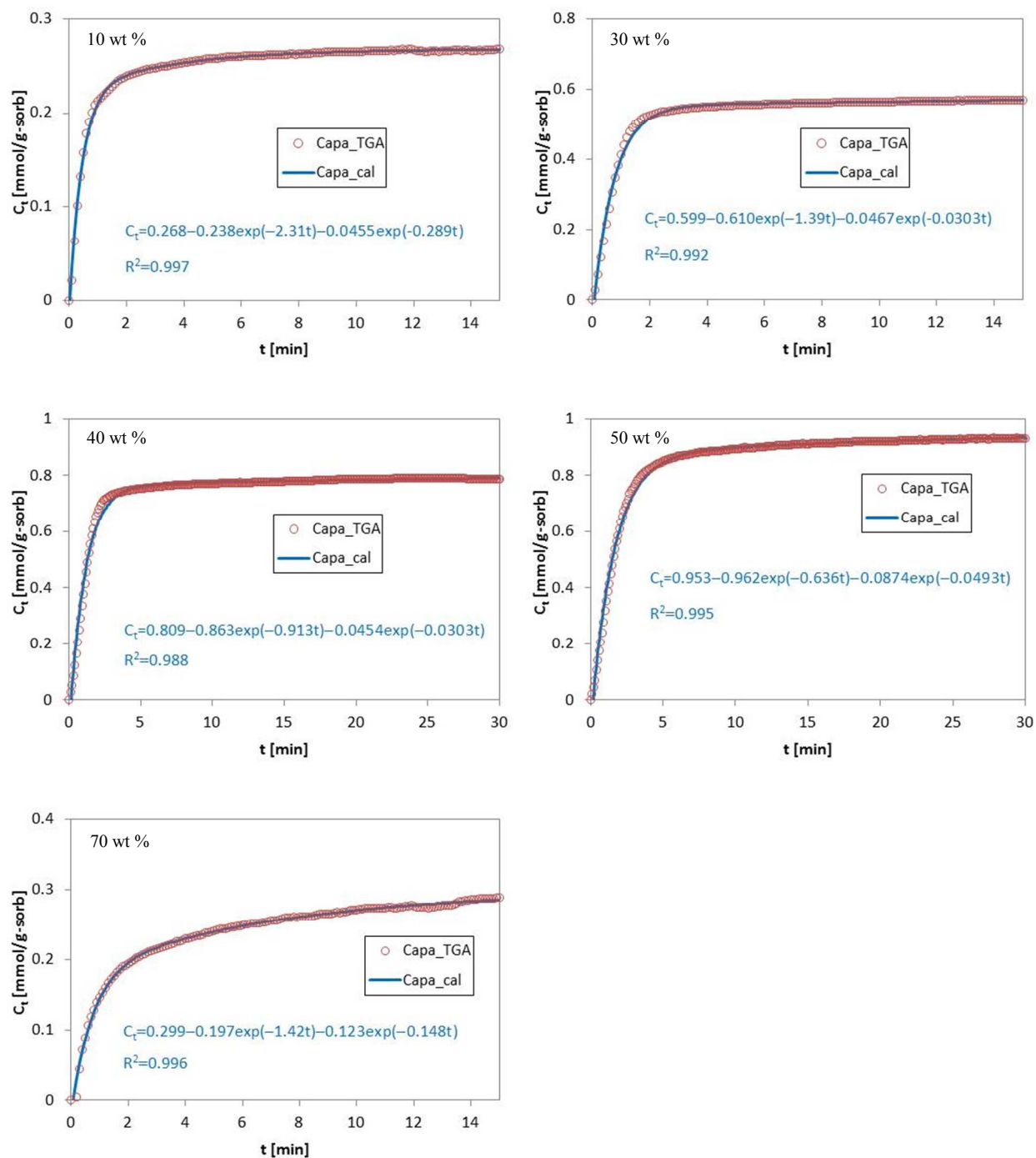


Figure S2. Fitted curves for CO₂ sorption experimental data of [EMIM][Gly]-PMMA sorbents with different loadings (Capa_TGA and Capa_cal represent the experimental and calculated data, respectively).

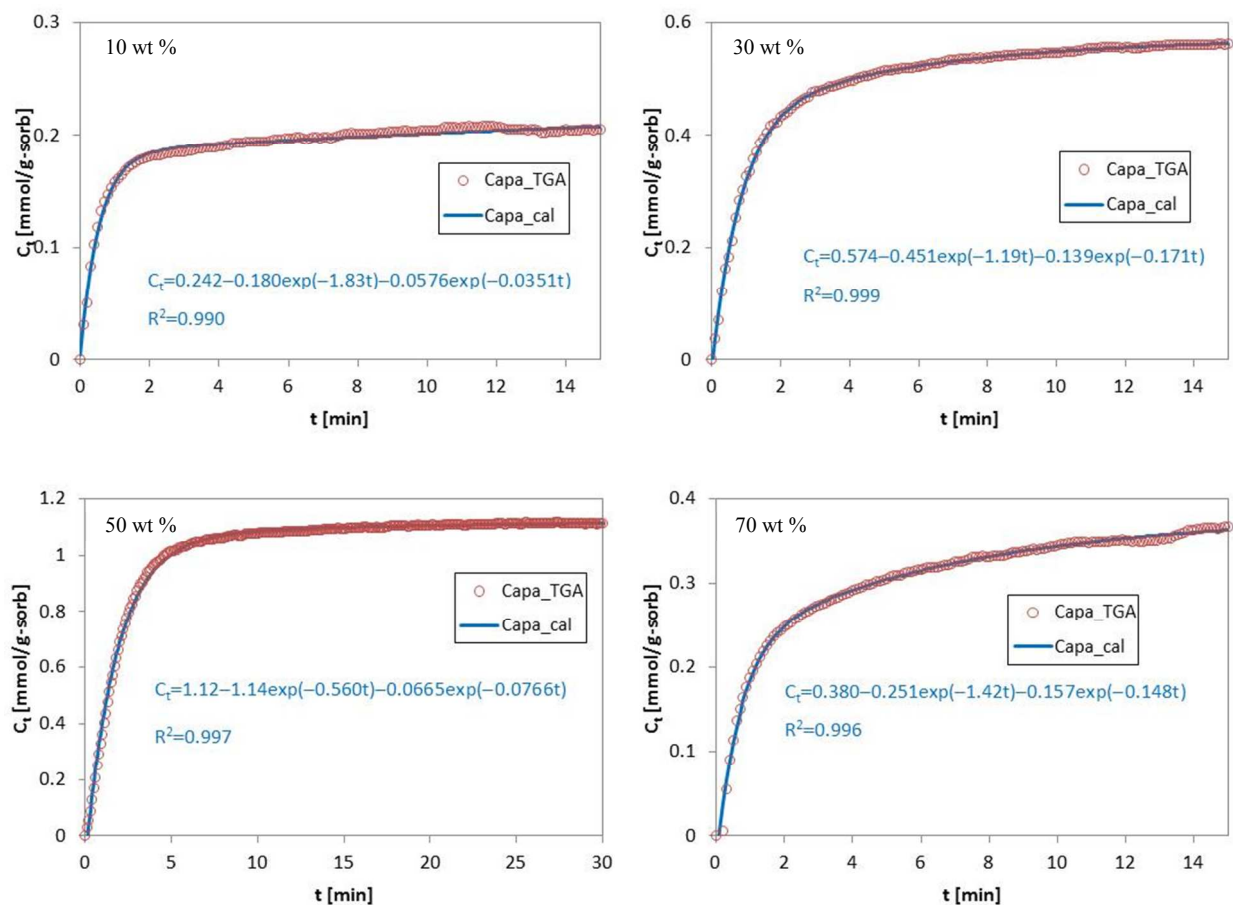


Figure S3. Fitted curves for CO₂ sorption experimental data of [EMIM][Lys]-PMMA sorbents with different loadings (Capa_TGA and Capa_cal represent the experimental and calculated data, respectively).

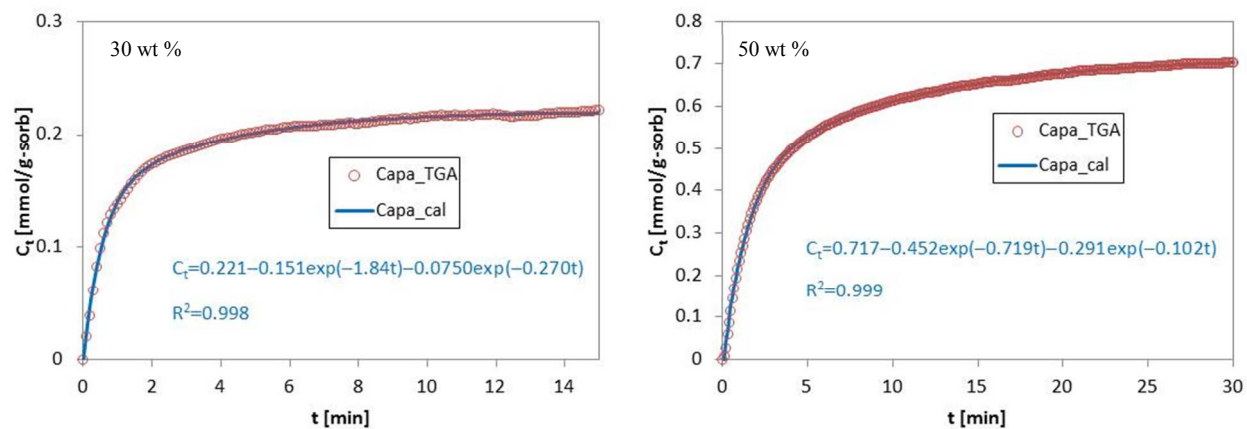


Figure S4. Fitted curves for CO₂ sorption experimental data of [EMIM][His]-PMMA sorbents with different loadings (Capa_TGA and Capa_cal represent the experimental and calculated data, respectively).

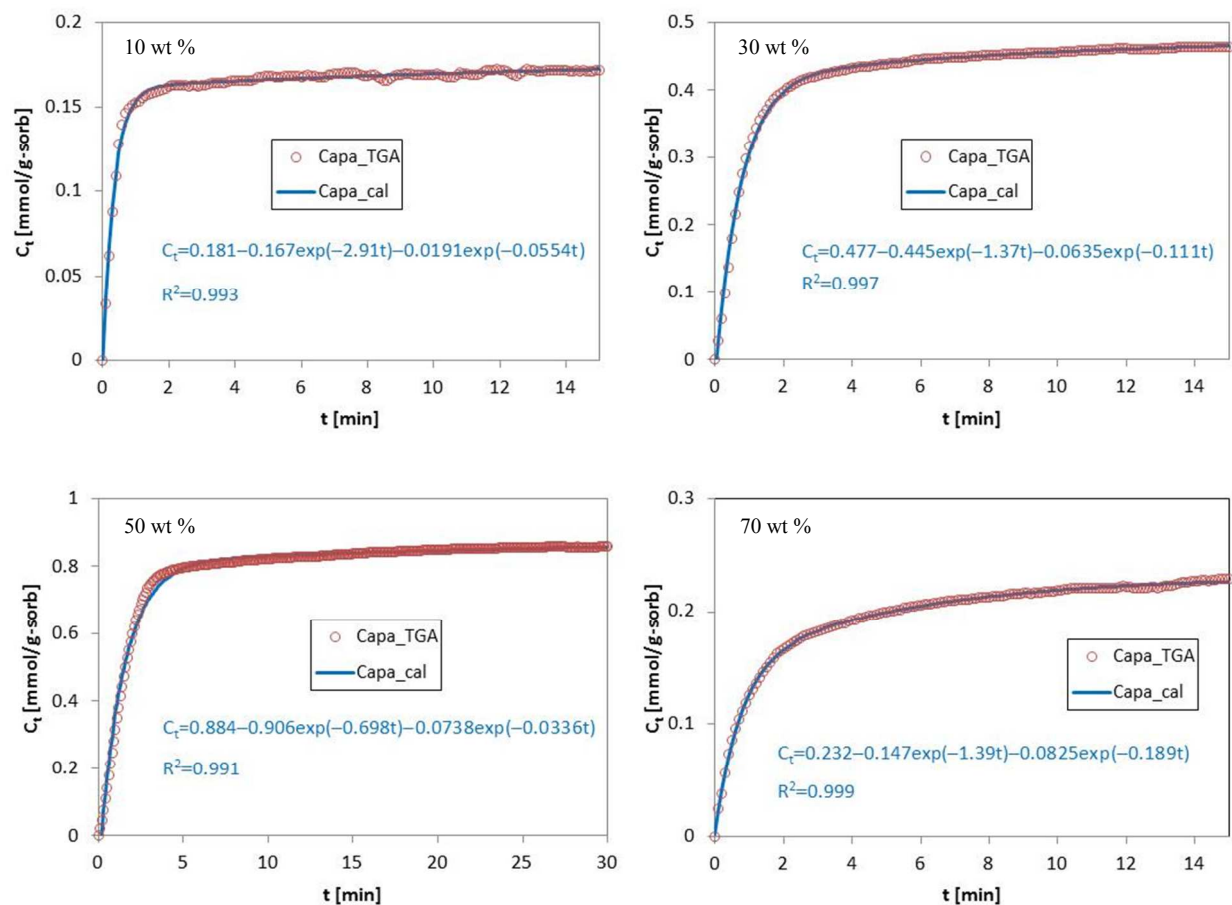


Figure S5. Fitted curves for CO₂ sorption experimental data of [EMIM][Ala]-PMMA sorbents with different loadings (Capa_TGA and Capa_cal represent the experimental and calculated data, respectively).

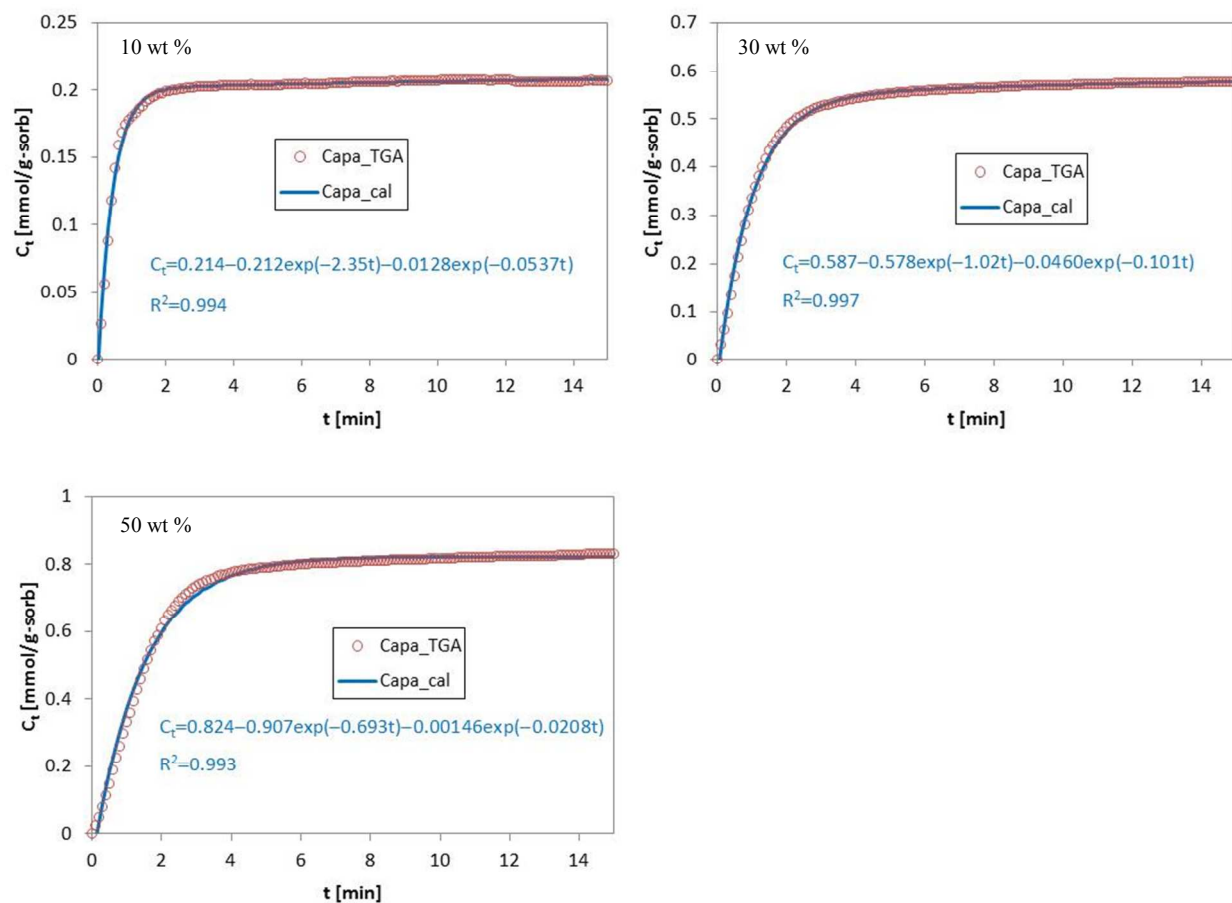


Figure S6. Fitted curves for CO₂ sorption experimental data of [EMIM][BALA]-PMMA sorbents with different loadings (Capa_TGA and Capa_cal represent the experimental and calculated data, respectively).

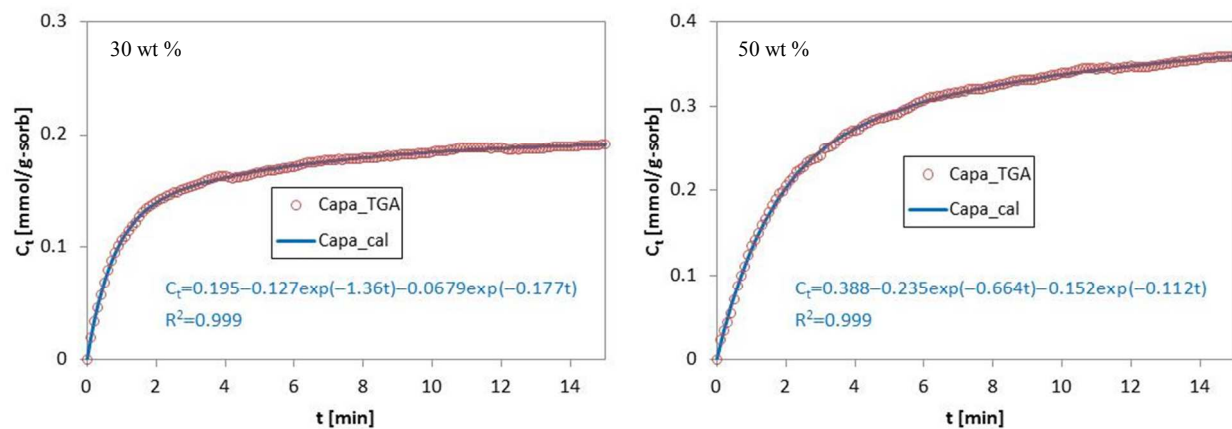


Figure S7. Fitted curves for CO₂ sorption experimental data of [EMIM][Arg]-PMMA sorbents with different loadings (Capa_TGA and Capa_cal represent the experimental and calculated data, respectively).

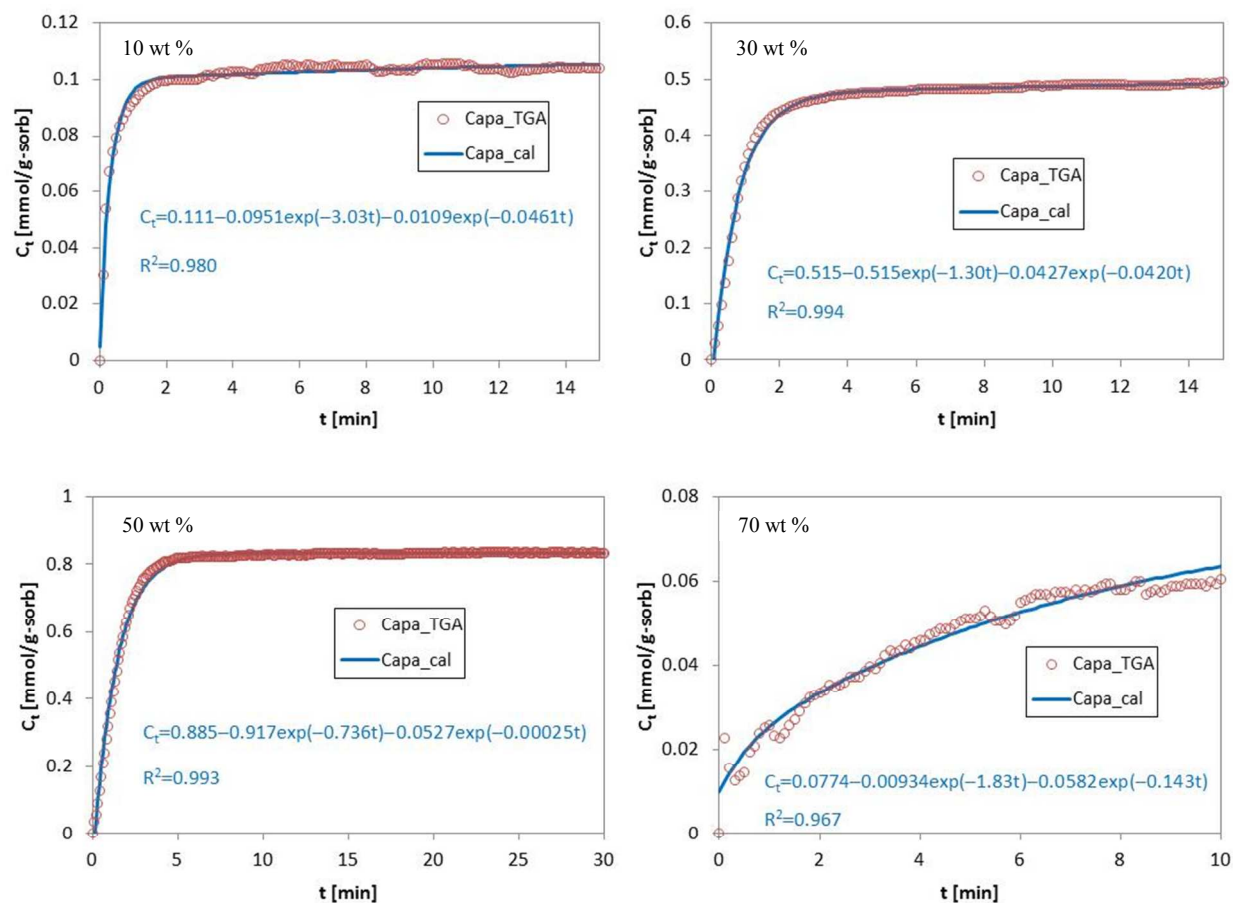


Figure S8. Fitted curves for CO₂ sorption experimental data of [P₄₄₄₄][Gly]-PMMA sorbents with different loadings (Capa_TGA and Capa_cal represent the experimental and calculated data, respectively).

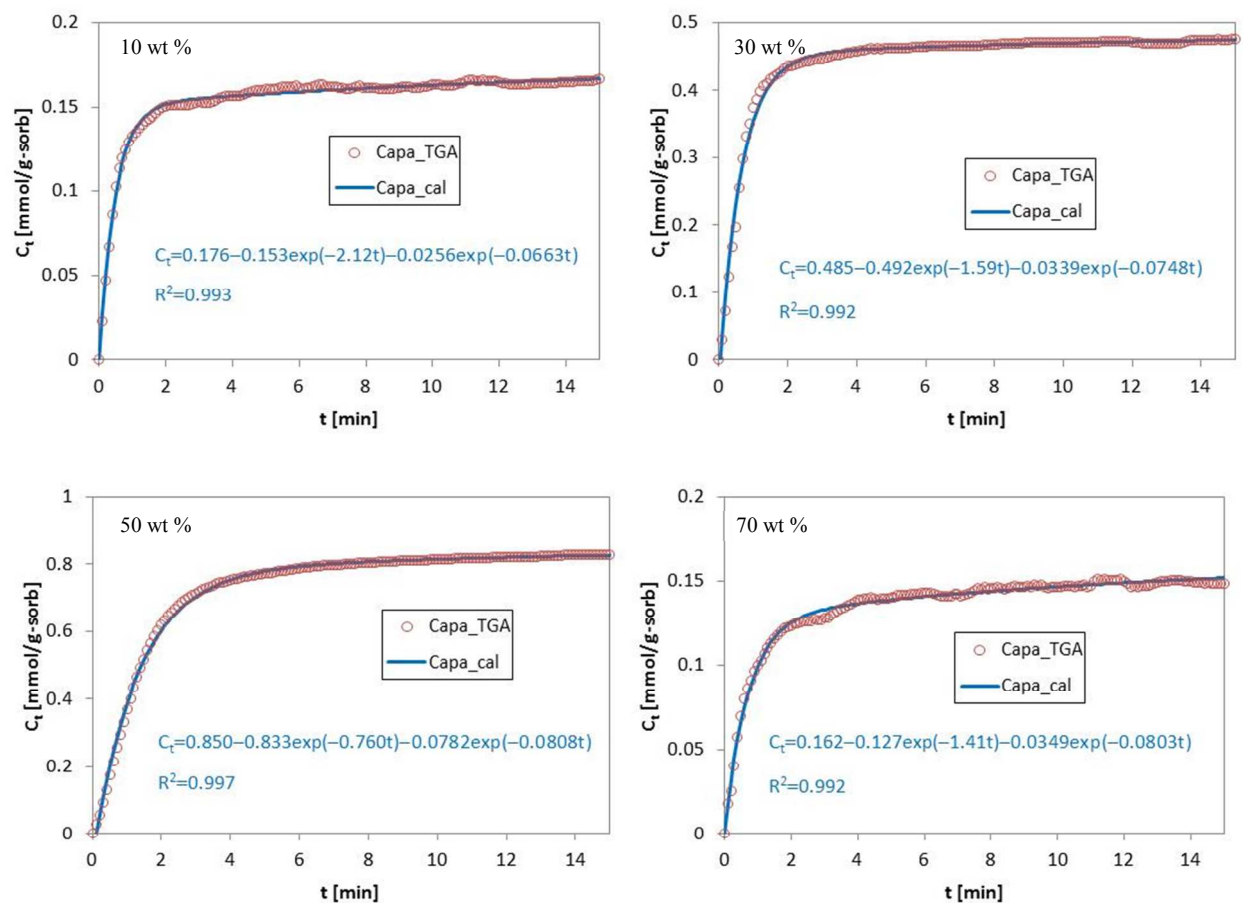


Figure S9. Fitted curves for CO₂ sorption experimental data of [P₄₄₄₄][Lys]-PMMA sorbents with different loadings (Capa_TGA and Capa_cal represent the experimental and calculated data, respectively).

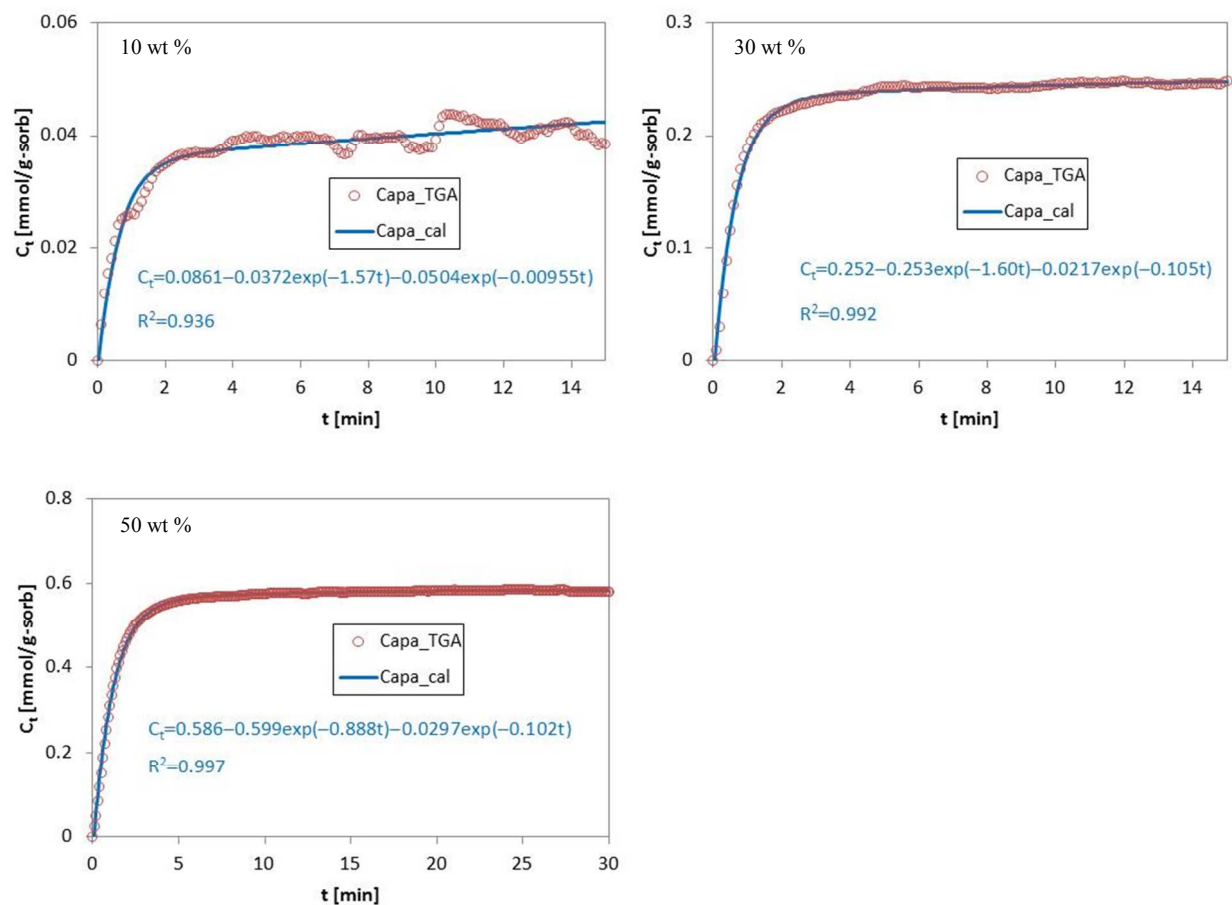


Figure S10. Fitted curves for CO₂ sorption experimental data of [P₄₄₄₄][His]-PMMA sorbents with different loadings (Capa_TGA and Capa_cal represent the experimental and calculated data, respectively).