

## Electronic Supplementary Information

### **Discrimination and highly selective adsorption of phosphoprotein and glycoprotein with arginine functionalized polyhedral oligomeric silsesquioxane framework**

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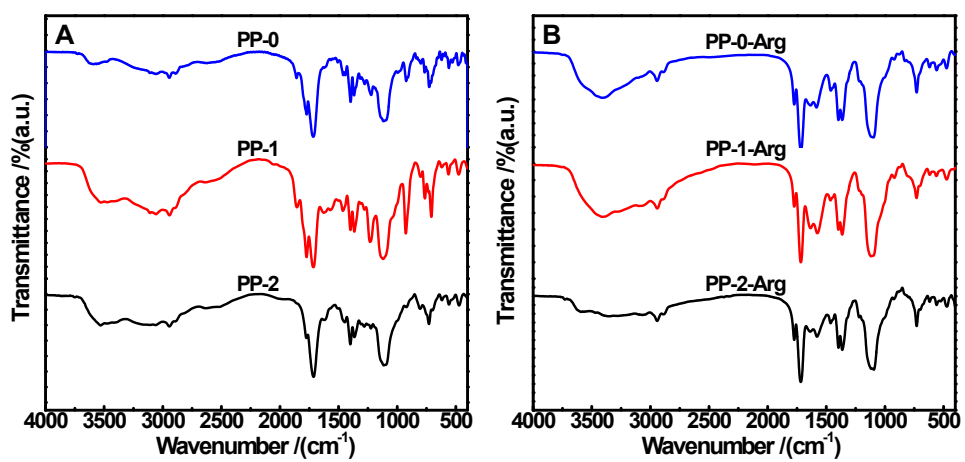
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Table S1. XPS atomic data analysis of the PP-1 and PP-1-Arg framework.

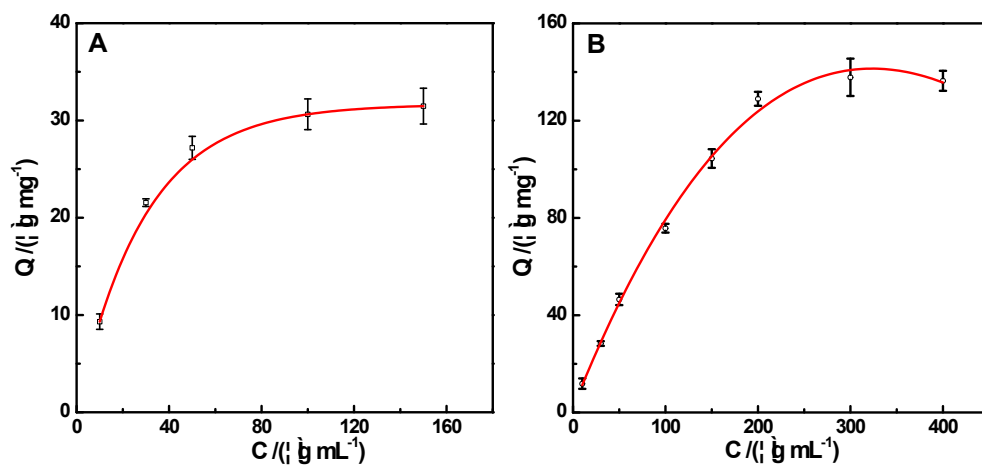
	Si 2p	N 1s	O 1s	C1s
PP-1	7.3%	6.46%	29.09%	57.16%
PP-1-Arg	7.05%	9.43%	25.62%	57.9%

Table S2. Relative content of different nitrogenous groups in the PP-1 and PP-1-Arg framework.

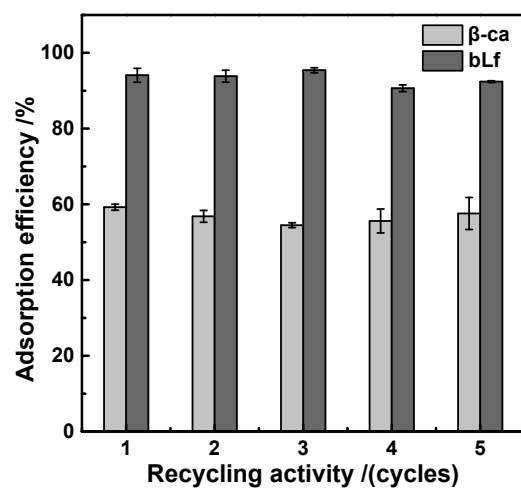
	C=N	C-N	-N-H
PP-1	0	72.6%	27.4%
PP-1-Arg	7.9%	75.4%	17.4%



**Fig. S1** (A) FT-IR spectra of PP-0, PP-1 and PP-2. (B) FT-IR spectra of PP-0-Arg, PP-1-Arg and PP-2-Arg.



**Fig. S2** The adsorption isotherm of  $\beta$ -ca (A) and bLF (B) on the PP-1-Arg framework at pH 1 and pH 7, respectively. Protein solution: 10-450  $\mu\text{g mL}^{-1}$ , 1.0 mL; Amount of the adsorbent: 0.1 mg; Adsorption time: 30 min.



**Fig. S3** Effect of recycling number on the adsorption of  $\beta$ -ca and bLf by the PP-1-Arg framework.