Supplementary Material for "Performance and mechanisms for removal of perfluorooctanoate (PFOA) from aqueous solution by activated carbon fiber"

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Table S1 PFOA concentrations in the bank experiments without ACF

Time (h)	Number of the replicates	Initial concentration (mg L^{-1})	Final concentration (mg L^{-1})
0	3	100	100.58 ± 0.49
0.08	3	100	99.71 ± 0.52
0.25	3	100	99.65 ± 0.71
0.5	3	100	100.78 ± 0.41
1	3	100	101.51 ± 0.12
1.5	3	100	99.11 ± 1.32
2	3	100	100.13 ± 0.58
4	3	100	100.02 ± 0.50
6	3	100	100.80 ± 0.77
8	3	100	99.65 ± 0.82
10	3	100	101.38 ± 0.21
12	3	100	100.67 ± 0.12
24	3	100	100.67 ± 0.34

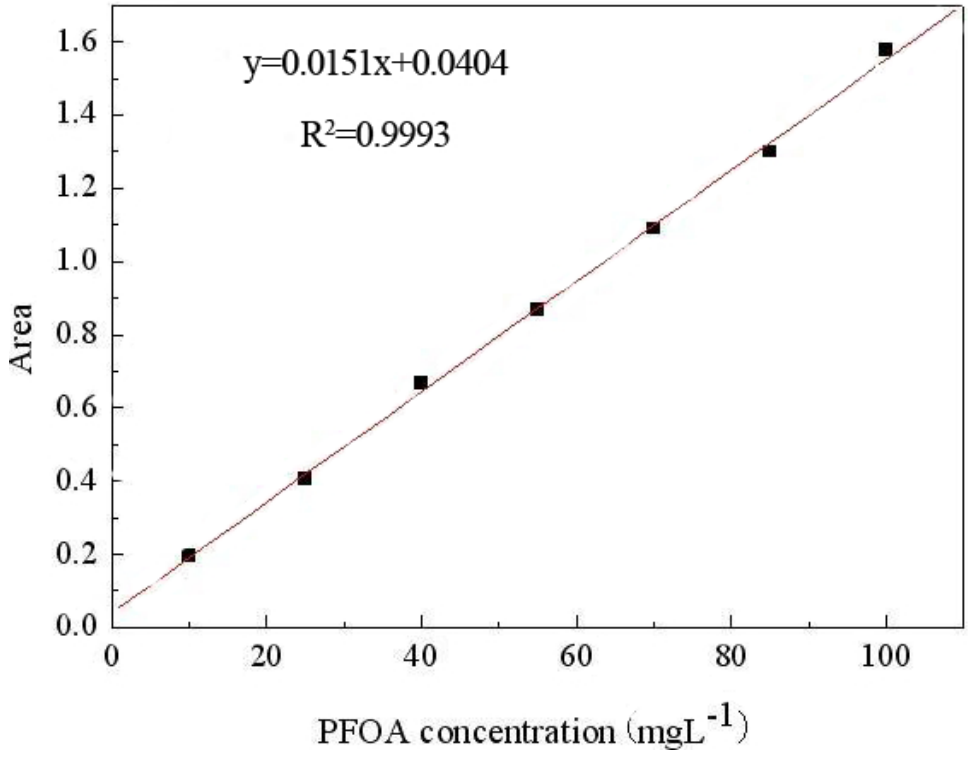


Fig. S1 The quantitative standard curve of PFOA

Table S2 Sorption kinetics of PFOA on ACF and the fitting parameters using the pseudo-first-order and the pseudo-second-order models

Absorbent	Final pH	Pseudo-first-order			Pseudo-second-order		
		kl (h^{-1})	q_e (mg g^{-1})	R^2	k_2* (h^{-1})	q_e (mg g^{-1})	R^2
ACF	7.0	0.97	103.97	0.986	1.32	115.24	0.998

Table S3 Kinetic parameters of intraparticle diffusion model for PFOA sorption on ACF

Adsorbent	Itraparticle diffusion model		
	k_{WM} ($h^{-1/2}$)	C (μmol g^{-1})	R^2
ACF	61.98 ± 2.09	-0.57 ± 1.97	0.995

Table S4 Sorption equilibrium constants of Freundich model and Langmuir model for PFOA sorption on ACF

Absorbent	Langmuir constants			Freundich constants		
	kl (mg L^{-1})	Q_o (mg g^{-1})	R^2	n^{-1}	K_F ($mg^{1-1/n}$ $L^{1/n}$ g^{-1})	R^2
ACF	63.37	400.63	0.969	0.43	30.21	0.990

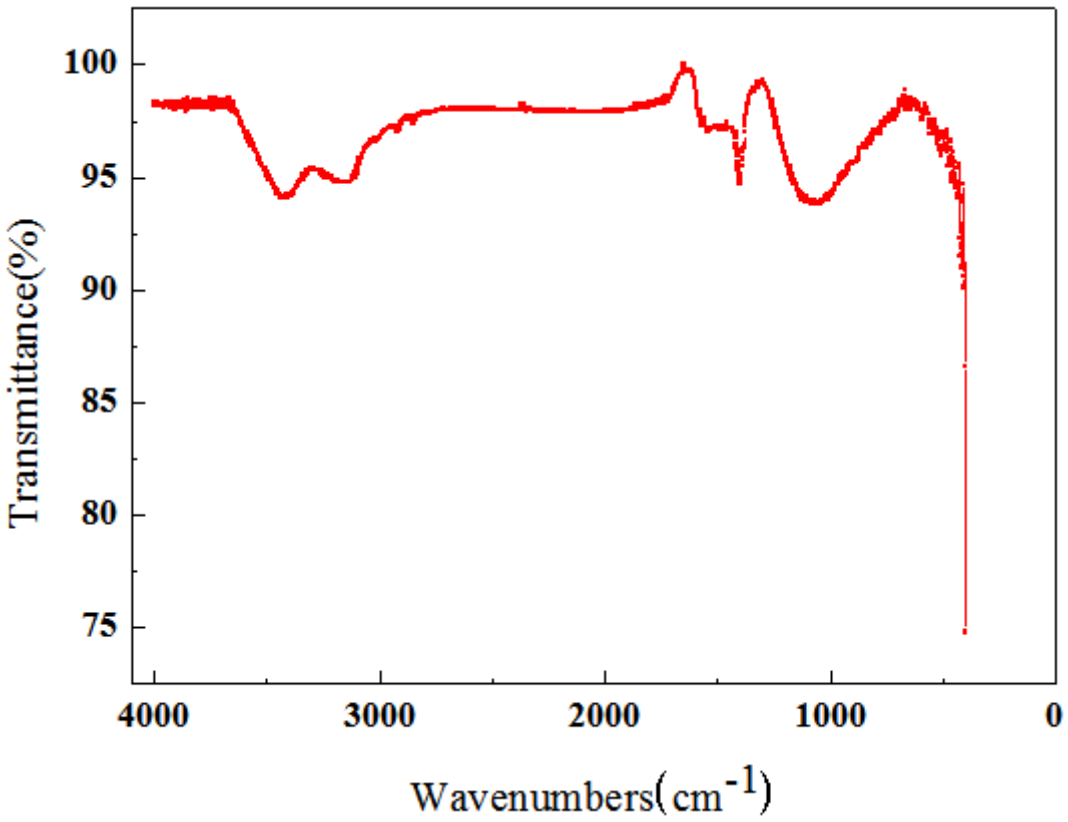
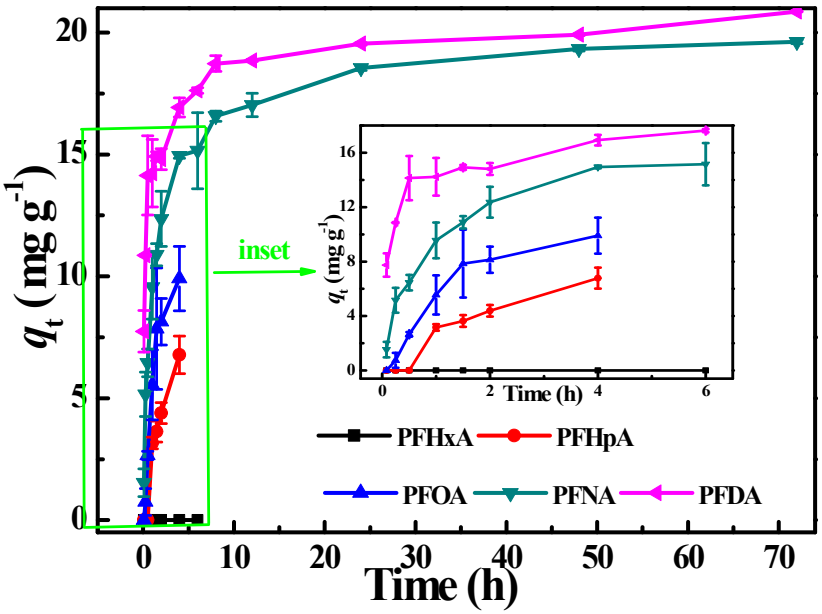


Fig. S2 Fourier transform infrared spectroscopy (FT-IR) spectrum of ACF



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137 **Fig. S3** Sorption capacities of PFCAs solution containing PFHxA, PFHpA, PFOA, PFNA and

138 PFDA on ACF in the mixed PFCA systems (PFCAs at each concentration of 1 mg L^{-1} and

139 ACF of 5 mg)

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