

Table S1 The content of Fe, C, F, O and N elements, as well as the parameter $R_{Fe/F}$, in $Fe_3O_4/PVDF$ magnetic composites prepared under different magnetic field strengths.

	A						B						C					
	Fe(%)	C(%)	F(%)	O(%)	N(%)	$R_{Fe/F}$	Fe(%)	C(%)	F(%)	O(%)	N(%)	$R_{Fe/F}$	Fe(%)	C(%)	F(%)	O(%)	N(%)	$R_{Fe/F}$
0.35 T	20.06	27.92	43.02	4.27	4.73	0.466	20.39	34.76	22.70	9.69	12.46	0.898	18.19	49.34	17.69	8.76	6.03	1.028
0.5 T	15.53	28.10	41.11	5.64	9.63	0.378	26.87	27.43	34.14	6.53	5.04	0.787	35.92	22.62	24.83	9.91	6.73	1.447
0.8 T	15.57	30.6	46.34	5.05	2.43	0.336	15.33	30.9	47.91	4.43	1.5	0.32	27.88	41.96	10.88	10.71	8.57	2.563

Table S2 The content of Fe, C, F, O and N elements, as well as the parameter $R_{Fe/F}$, in $Fe_3O_4/PVDF$ magnetic composites prepared under different magnet spacings.

	A						B						C					
	Fe(%)	C(%)	F(%)	O(%)	N(%)	$R_{Fe/F}$	Fe(%)	C(%)	F(%)	O(%)	N(%)	$R_{Fe/F}$	Fe(%)	C(%)	F(%)	O(%)	N(%)	$R_{Fe/F}$
5 mm	20.06	27.92	43.02	4.27	4.73	0.466	20.39	34.76	22.70	9.69	12.46	0.898	18.19	49.34	17.69	8.76	6.03	1.028
7 mm	18.47	26.03	41.52	6.78	7.21	0.445	25.17	28.51	39.30	5.74	1.27	0.64	26.91	28.9	19.37	12.02	12.8	1.389
9 mm	24.26	26.30	36.59	6.08	6.77	0.663	26.05	25.72	35.8	6.98	5.45	0.728	30.71	24.46	29.94	9.49	5.40	1.026

Table S3 The content of Fe, C, F, O and N elements, as well as the parameter $R_{Fe/F}$, in $Fe_3O_4/PVDF$ magnetic composites prepared under different magnet movement speeds.

	A						B						C					
	Fe(%)	C(%)	F(%)	O(%)	N(%)	$R_{Fe/F}$	Fe(%)	C(%)	F(%)	O(%)	N(%)	$R_{Fe/F}$	Fe(%)	C(%)	F(%)	O(%)	N(%)	$R_{Fe/F}$
0.5 mm/s	19.36	29.08	42.34	4.8	4.42	0.457	27.45	24.52	34.41	8.63	4.98	0.798	35.94	22.43	25.54	10.16	5.93	1.407
1.0 mm/s	20.06	27.92	43.02	4.27	4.73	0.466	20.39	34.76	22.70	9.69	12.46	0.898	18.19	49.34	17.69	8.76	6.03	1.028

1.5 mm/s	21.75	28.82	40.38	5.66	3.38	0.539	27.10	24.40	34.28	7.30	6.91	0.791	33.16	25.26	28.25	8.08	5.25	1.174
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Table S4 The content of Fe, C, F, O and N elements, as well as the parameter $R_{Fe/F}$, in $Fe_3O_4/PVDF$ magnetic composites prepared under different initial particle contents.

	A						B						C						
	Fe(%)	C(%)	F(%)	O(%)	N(%)	$R_{Fe/F}$	Fe(%)	C(%)	F(%)	O(%)	N(%)	$R_{Fe/F}$	Fe(%)	C(%)	F(%)	O(%)	N(%)	$R_{Fe/F}$	
0.1	15.05	27.85	43.99	4.77	8.33	0.342	24.83	25.97	38.49	7.33	3.39	0.645	22.15	28.05	30.00	8.58	11.2	0.738	
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0.2	20.06	27.92	43.02	4.27	4.73	0.466	20.39	34.76	22.70	9.69	12.46	0.898	18.19	49.34	17.69	8.76	6.03	1.028	
0.3	26.17	30.08	36.80	3.54	3.40	0.711	31.51	25.60	31.44	6.92	4.53	1.002	38.47	22.42	23.39	10.75	4.97	1.645	