

Supporting information for
Foamed graphene flakes from one-step pyrolysis of PEG/MgO composites for
supercapacitors and lithium ion batteries

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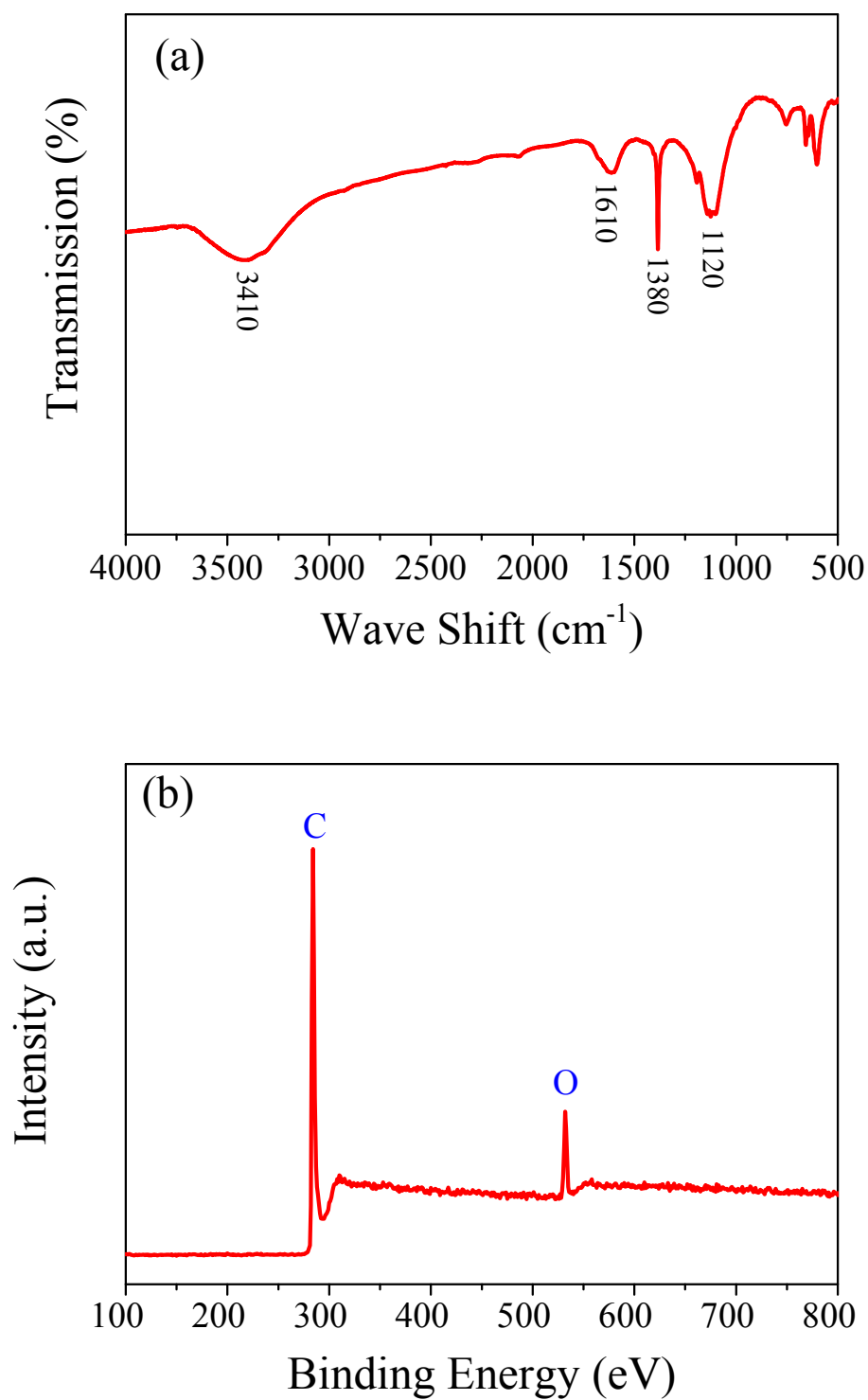
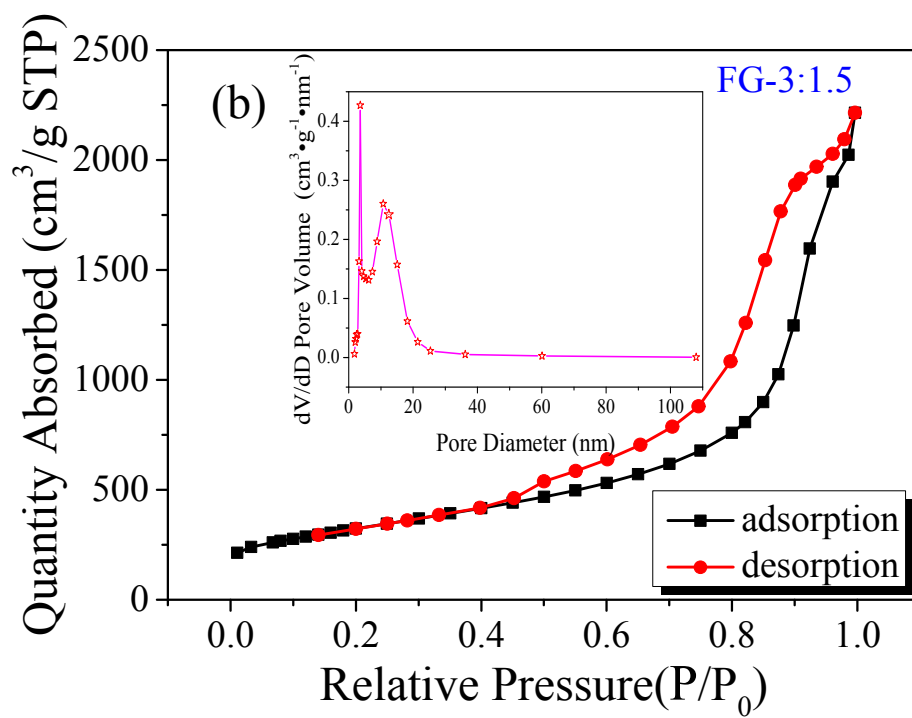
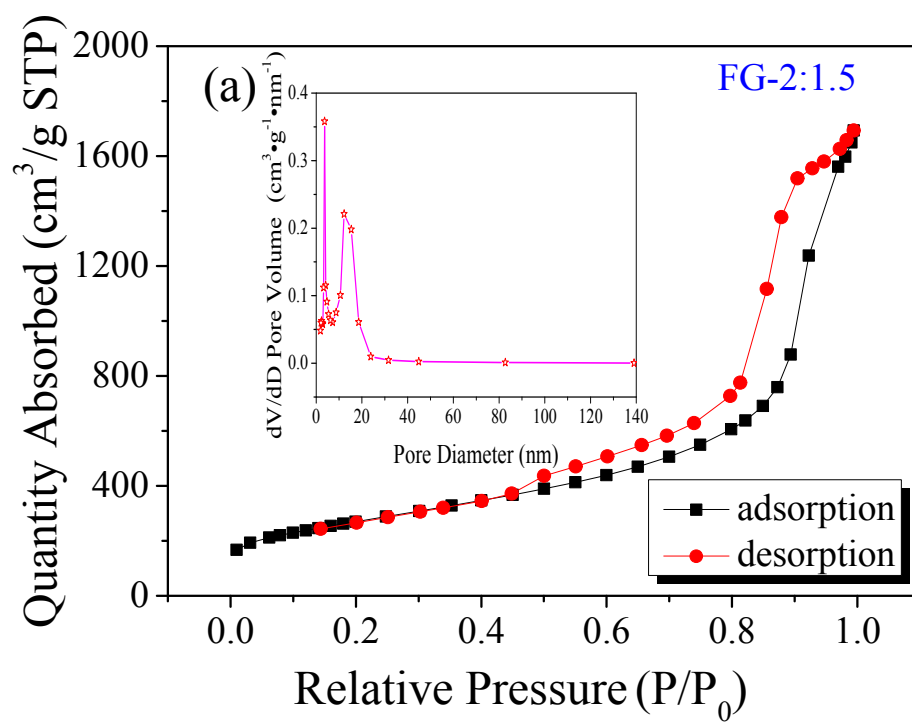


Fig. S1 (a) FT-IR spectrum and (b) XPS spectra survey of the FG-4:1.5 after purification.



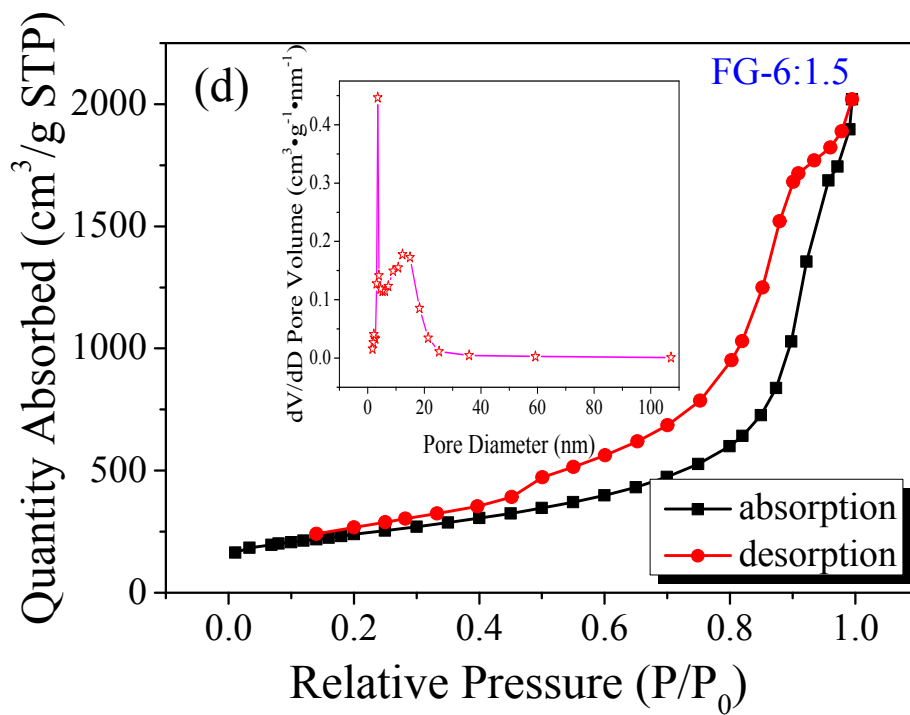
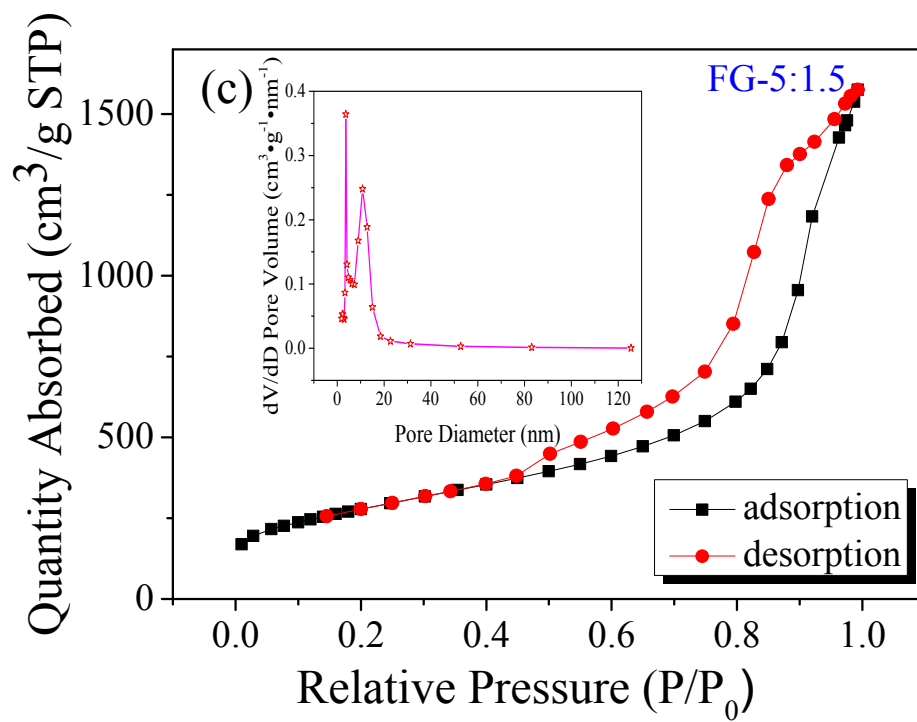
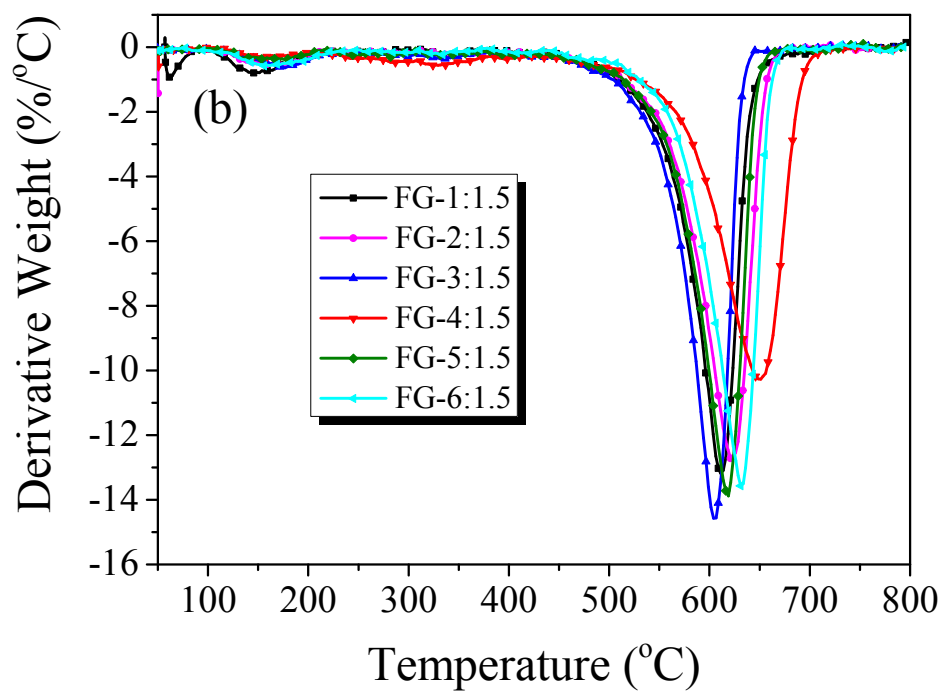
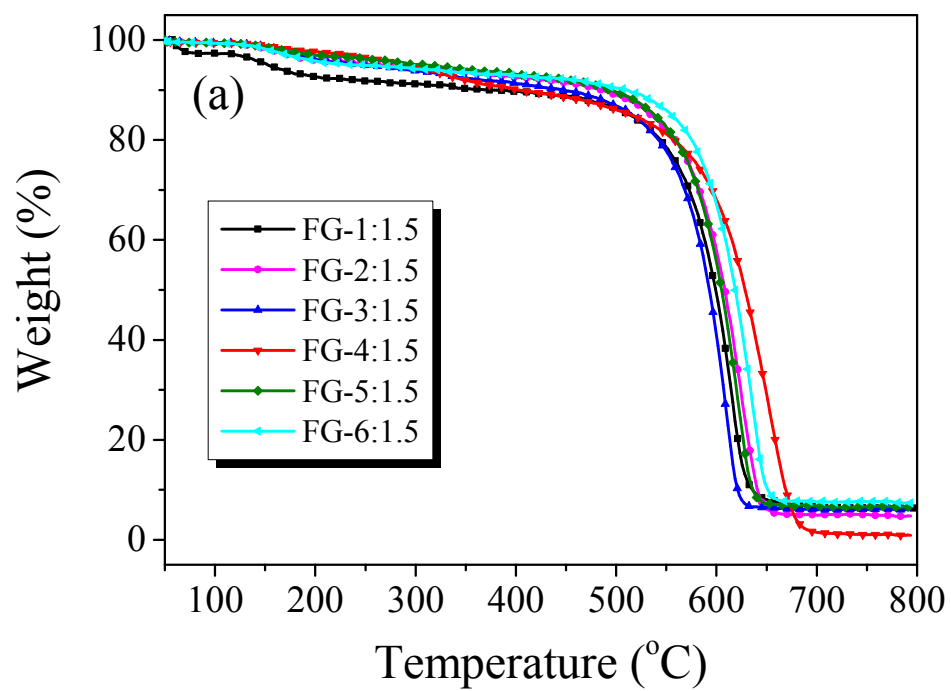


Fig. S2. N_2 adsorption/desorption isotherms of (a) FG-2:1.5; (b) FG-3:1.5; (c) FG-5:1.5; (d) FG-6:1.5.



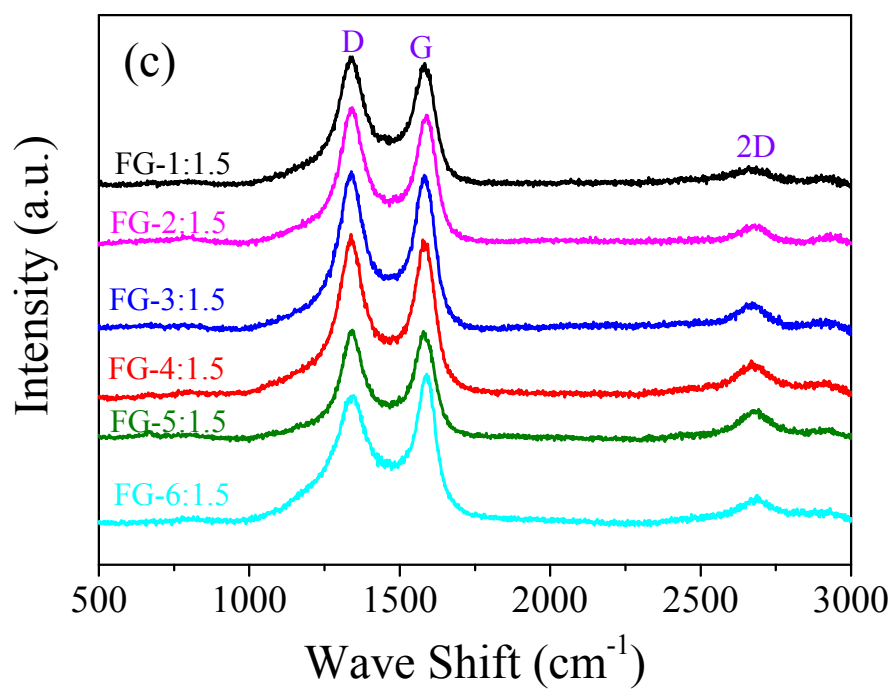


Fig. S3. (a) TG curves; (b)DTG curves and (c)Raman spectrums of FG-1:1.5, FG-2:1.5, FG-3:1.5, FG-4:1.5, FG-5:1.5 and FG-6:1.5.

TABLE S1. Porosity properties of FGs samples based on N₂ adsorption/desorption isotherms.

Sample	BET Surface	Micropore	External	Average	Total Pore	Micropore
	Area	Area	Surface Area	Pore Width	Volume	Volume
	(m ² /g)	(m ² /g)	(m ² /g)	(nm)	(cm ³ /g)	(cm ³ /g)
FG-1:1.5	558.9	7.6	551.3	12.6	1.768	0.001
FG-2:1.5	958.6	59.1	899.5	10.3	2.472	0.024
FG-3:1.5	1145.4	99.5	1045.9	10.9	3.131	0.043
FG-4:1.5	1333.7	37.2	1296.5	9.5	2.901	0.023
FG-5:1.5	984.1	67.4	916.7	9.2	2.267	0.030
FG-6:1.5	833.7	122.6	711.1	12.9	2.698	0.058

TABLE S2. The areal capacitances calculated from CV ($2 \text{ mV} \cdot \text{s}^{-1}$) and GCD at the current density of $0.5 \text{ A} \cdot \text{g}^{-1}$.

Sample	$C_{\text{Areal}}(\mu\text{F} \cdot \text{m}^{-2})$	$C_{\text{Areal}}(\mu\text{F} \cdot \text{m}^{-2})$
	(CV)	(GCD)
FG-1:1.5	29.5	26.1
FG-2:1.5	20.2	16.1
FG-3:1.5	17.8	14.8
FG-4:1.5	16.7	15.3
FG-5:1.5	21.8	19.4
FG-6:1.5	24.8	22