Supporting Information (SI)

Selectively oxidized carbon nanocatalysts for the oxidation of *cis*-cyclooctene

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Table S1. Data from the deconvolution of CO_2 TPD spectra of MWCNT materials using a multiple gaussian function.

Material	Peak #1				Peak #2				Peak #3				Peak #4					
	T_M[a] / °C	W[b] / °C	A[c] / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	A / µmol $g^{-1}s^{-1}$	A / µmol g^{-1}
MWCNT	307	251	3	33					560	251	3	33	702	251	3	34	9	108
MWCNTh	283	131	27	46	416	103	19	33	554	103	7	12	666	103	5	9	58	696
MWCNTht	302	183	3	15					533	183	11	55	710	183	6	30	20	240
MWCNTo					418	148	2	13	518	148	1	7	636	148	12	80	15	180

[a] T_M - temperature of the peak maximum; [b] W - peak width at half maximum; [c] A - integrated peak area.

Table S2. Data from the deconvolution of CO TPD spectra of MWCNT materials using a multiple gaussian function.

Material	Peak #1				Peak #2				Peak #3				Peak #4				Peak #5					
	T_M[a] / °C	W[b] / °C	A[c] / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	A / µmol $g^{-1}s^{-1}$	A / µmol g^{-1}
MWCNT	200	163	1	5	387	163	2	10	560	251	3	16	750	208	3	16	893	208	10	53	19	228
MWCNTh	295	101	3	3	438	101	13	13	554	103	7	8	709	157	54	62	876	157	21	24	88	1056
MWCNTht	250	175	3	4	424	175	3	4	533	183	11	13	709	196	49	58	864	196	18	21	84	1008
MWCNTo									518	148	1	1	720	174	60	76	830	174	18	23	79	948

[a] T_M - temperature of the peak maximum; [b] W - peak width at half maximum; [c] A - integrated peak area

Table S3. Data from the deconvolution of CO_2 TPD spectra of GF materials using a multiple gaussian function.

Material	Peak #1				Peak #2				Peak #3				Peak #4				Peak #5					
	T_M[a] / °C	W[b] / °C	A[c] / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	A / µmol $g^{-1}s^{-1}$	A / µmol g^{-1}
GF	288	237	5	20					519	237	9	35	693	237	10	39	916	237	2	6	26	312
GFh	283	111	25	35	421	179	26	37	571	179	11	15	722	179	9	13					71	852
GFht	270	177	2	7	364	177	1	4	560	177	12	43	715	177	12	43	884	177	1	3	28	336
GFo	309	248	2	11					513	248	4	22	683	248	12	67					18	216

[a] T_M - temperature of the peak maximum; [b] W - peak width at half maximum; [c] A - integrated peak area.

Table S4. Data from the deconvolution of CO TPD spectra of GF materials using a multiple gaussian function.

Material	Peak #1				Peak #2				Peak #3				Peak #4				Peak #5					
	T_M[a] / °C	W[b] / °C	A[c] / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	T_M / °C	W / °C	A / µmol $g^{-1}s^{-1}$	% rel	A / µmol $g^{-1}s^{-1}$	A / µmol g^{-1}
GF	299	199	4	5					519	237	9	10	693	199	52	59	863	199	23	26	88	1056
GFh	277	185	7	4	493	185	26	16	570	174	10	6	731	223	116	73	920	223	1	1	160	1920
GFht	286	218	6	4					560	177	13	9	742	218	122	84	947	218	4	3	145	1740
GFo	319	206	8	7					513	206	5	4	716	206	67	58	845	206	35	31	115	1380

[a] T_M - temperature of the peak maximum; [b] W - peak width at half maximum; [c] A - integrated peak area.

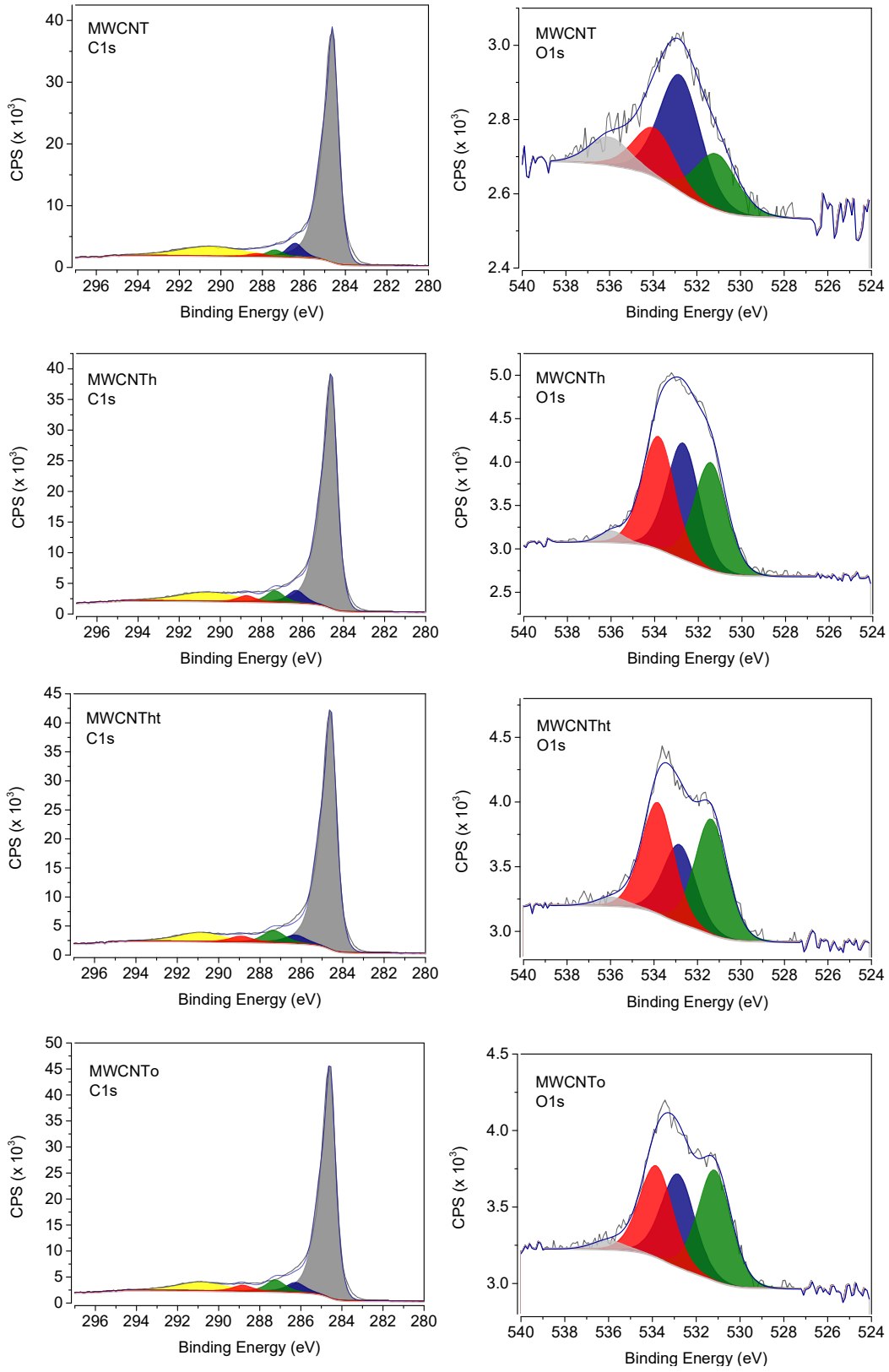

Figure S1. Deconvoluted C1s and O1s high resolution spectra of MWCNT materials.

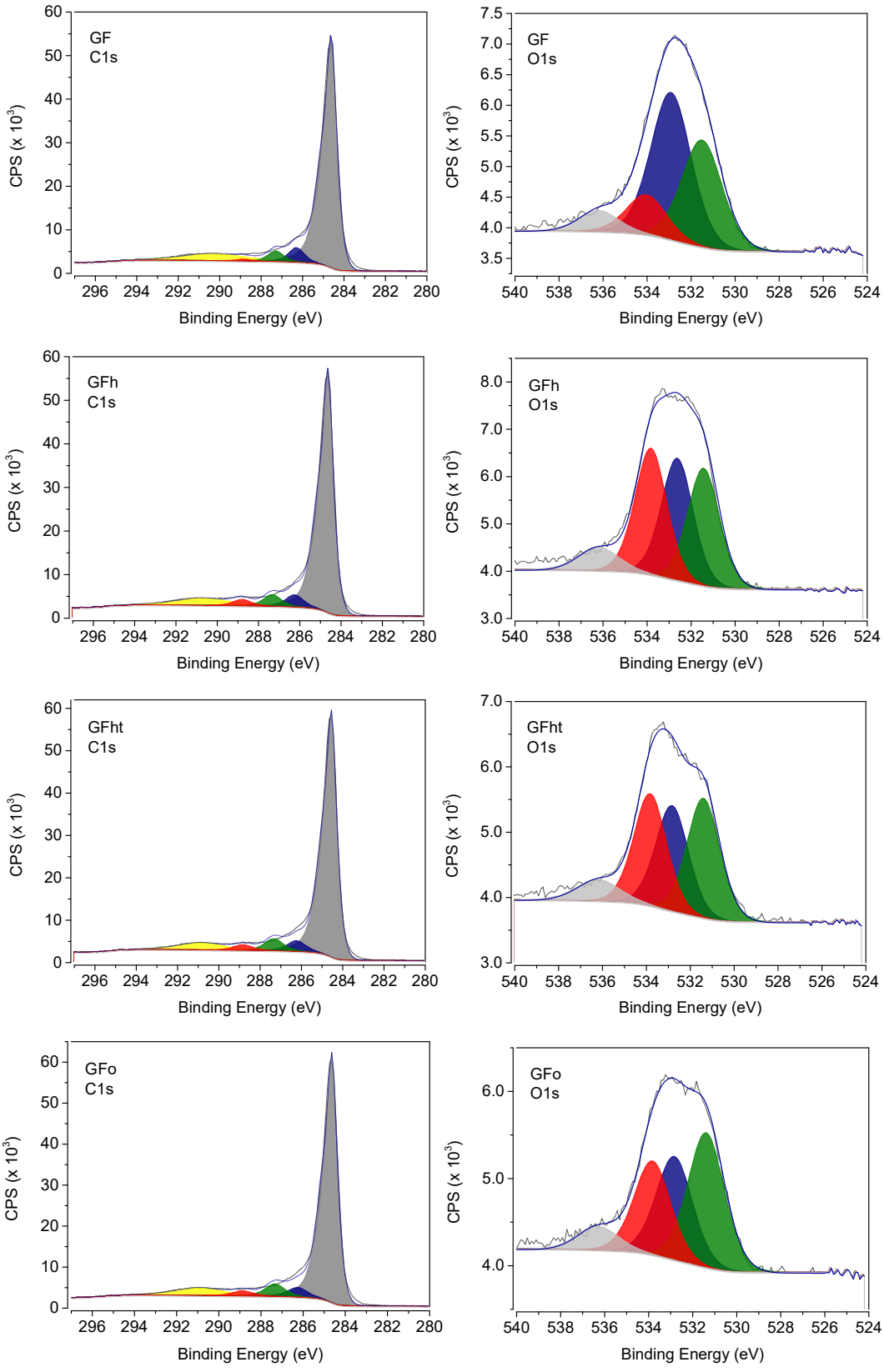

Figure S2. Deconvoluted C1s and O1s high resolution spectra of GF materials.

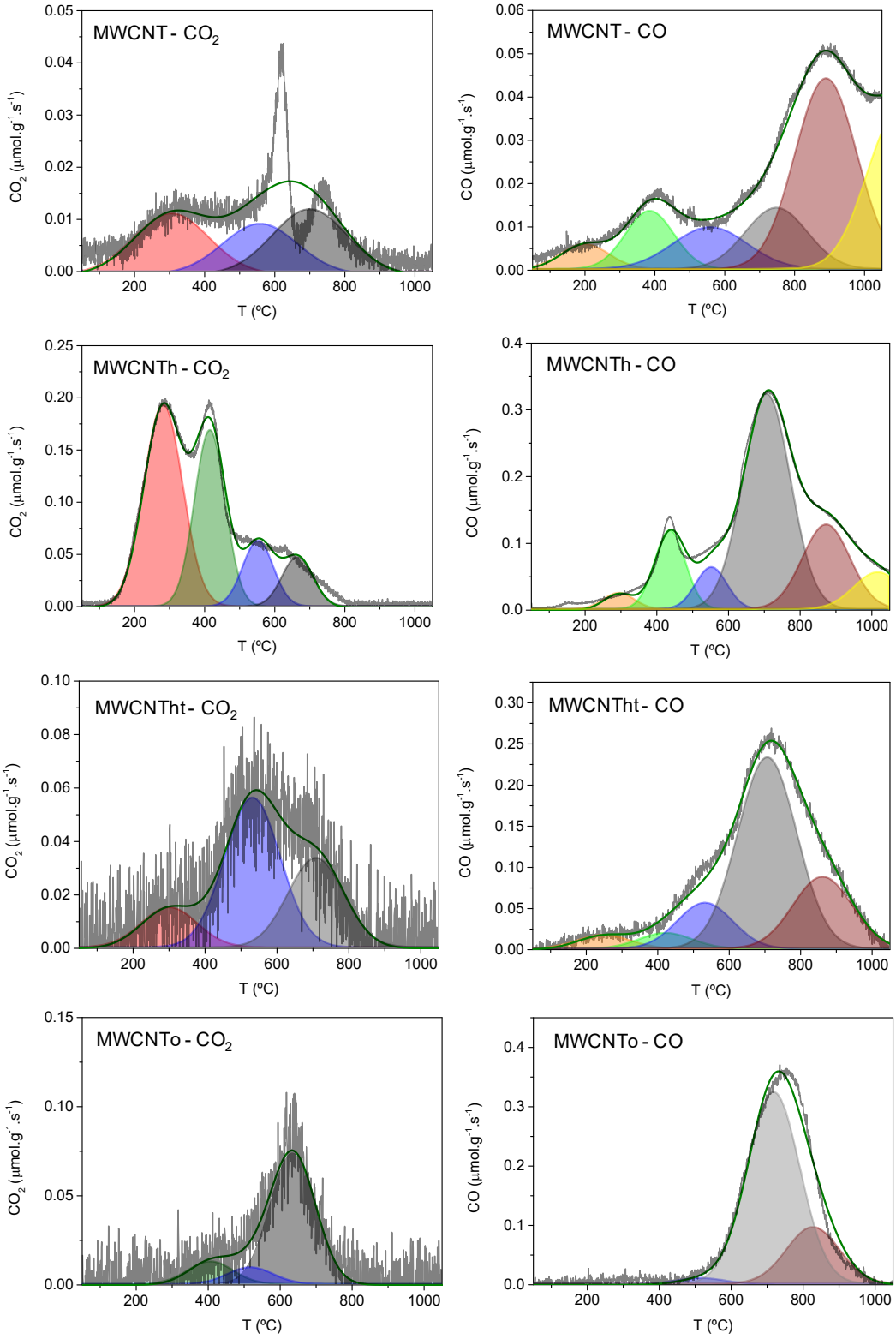

Figure S3. Deconvolution of the TPD profiles of the carbon nanotube materials.

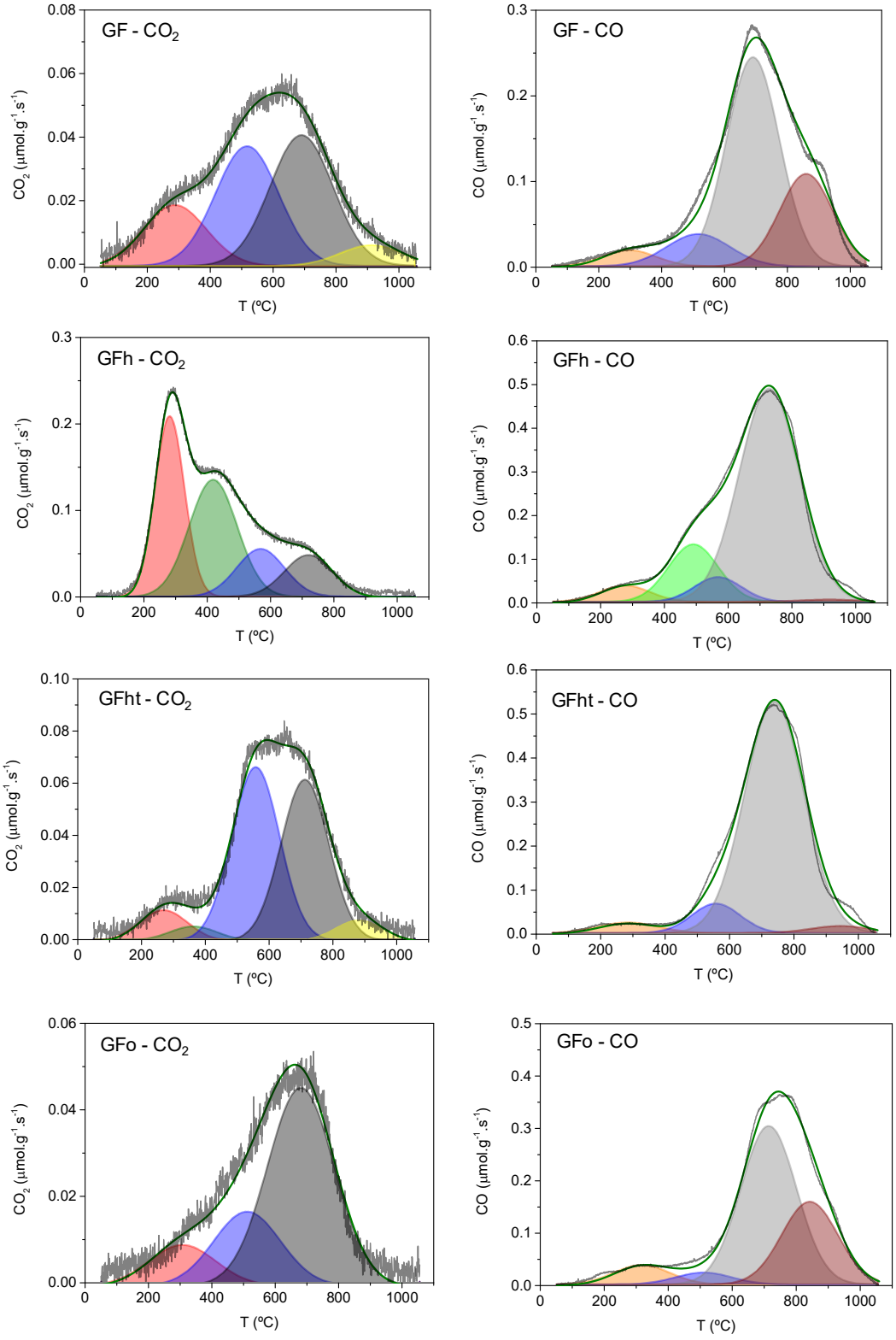

Figure S4. Deconvolution of the TPD profiles of the graphene flake materials.

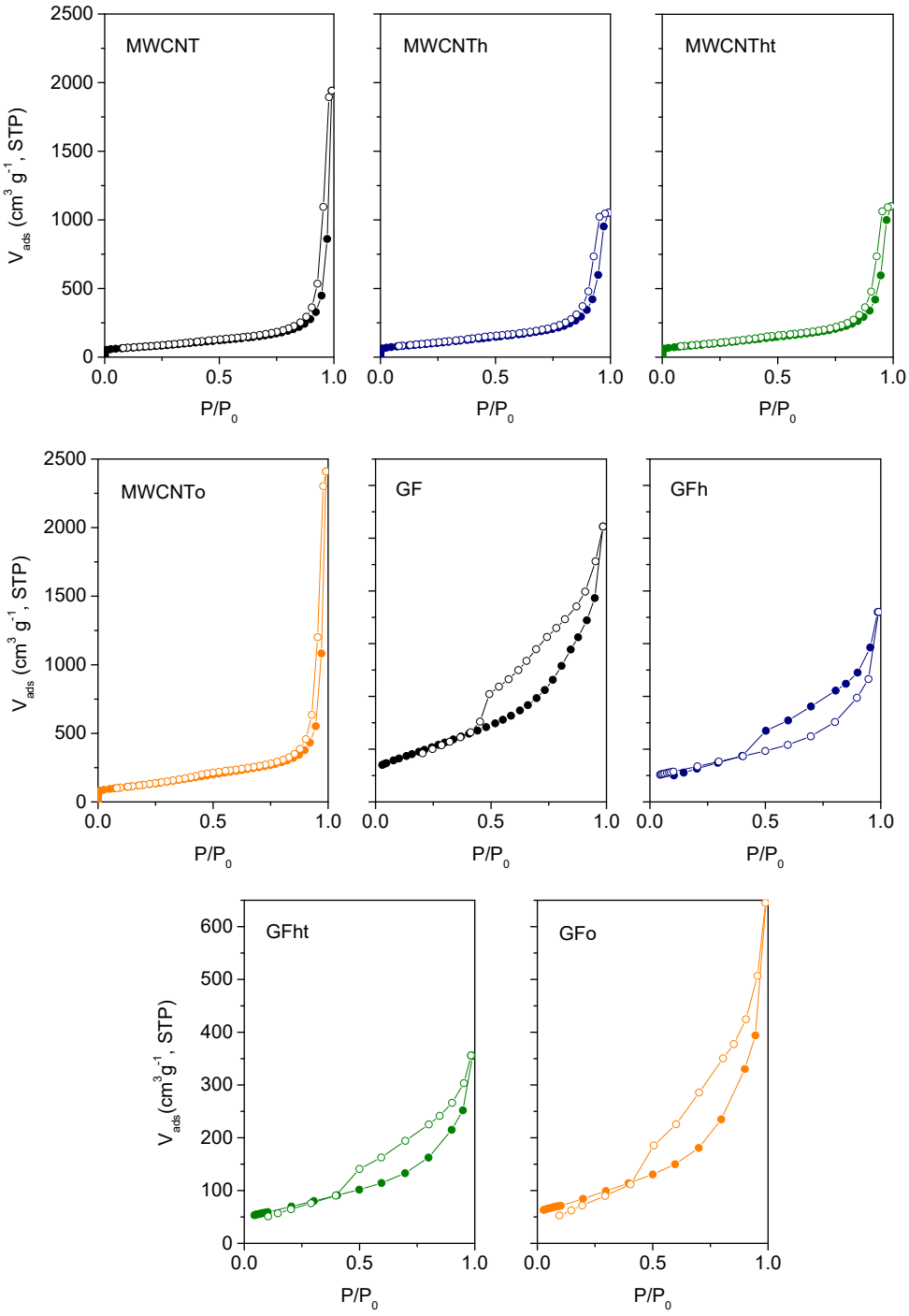

Figure S5. The nitrogen adsorption–desorption isotherms of the studied materials at −196 ◦C (filled and unfilled symbols represent the adsorption and desorption processes, repectively).