Electronic Supplementary Information for

Important factors for effective use of carbon nanotube matrices in electrochemical capacitor hybrid electrodes without binding additives

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Table S1 Elemental composition (wt%) of pure FWCNT electrodes processed in H_2O-SDBS, NMP and EtOH determined by XRF

Element	H_2O-SDBS	NMP	EtOH
C	95.031	97.820	98.437
O	4.171	2.030	1.465
N	N.A.	N.A.	N.A.
S	0.430	0.009	0.009
Si	0.066	0.069	0.032
Al	0.065	0.038	0.031
Fe	0.018	0.011	0.008
Na	0.071	N.A	N.A.
Mg	0.039	N.A.	N.A.
Ca	0.038	0.006	0.004
Cl	0.067	0.015	0.012

The FWCNTs processed in H_2O-SDBS contained a larger amount of O than those processed in NMP and EtOH because oxygen functionalities were introduced during rinsing in HNO_3. N was not detected in any of the FWCNTs, even for those processed in H_2O-SDBS and then rinsed in HNO_3. S was detected in the FWCNTs processed in H_2O-SDBS (0.43 wt%), showing that some residue of SDBS remained even after removal by rinsing with boiling water and HNO_3.

The FWCNTs contain small contents of Si, Al, and Fe of 0.03–0.07, 0.03–0.07, and 0.01–0.02 wt%, respectively. During FB-CVD, because of the vigorous fluidisation, the reactor wall made of quartz glass, beads and catalyst underlayer made of Al_2O_3, and Fe catalyst are scraped off, resulting in these contaminants in the FWCNTs.[23]

Na is detected only in the FWCNTs processed in H_2O-SDBS, possibly from the residue of SDBS. Small contents (<<0.1 wt%) of some other elements (*i.e.*, Mg, Ca, and Cl) are also detected, but their origin remains unclear.

Table S2 Elemental composition (wt%) of AC2000-SWCNT (9:1) electrodes processed in H_2O-SDBS, NMP, and EtOH determined by XRF

Element	H_2O-SDBS	NMP	EtOH
C	91.759	95.835	96.458
O	7.305	3.904	3.307
N	N.A.	N.A.	N.A.
S	0.734	0.041	0.043
Si	0.167	0.170	0.141
Al	0.013	0.025	0.020
Fe	0.006	0.003	0.002
Ca	N.A.	0.011	0.013
Cl	0.017	0.010	0.013