

Supporting Information

Carbon Black and Reduced Graphene Oxide Nanocomposite for binder free supercapacitors with Reduced Graphene Oxide Paper as current collector

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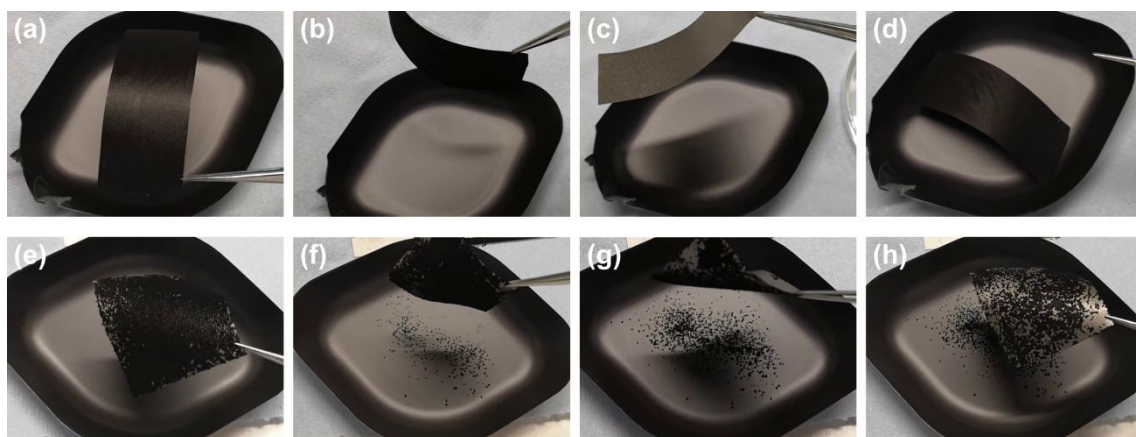


Figure S1. Qualitative comparison of the adhesion of the active material on the current collector and of its mechanical integrity between (a-d) CB/GO_Gr_TT and (e-h) CB_Gr_TT as samples were: (a) and (e), as taken out from the furnace; (b) and (f), tilted on a side; (c) and (g) tilted upside-down; (d) and (h), returned to horizontal position. A considerable amount of active material falling from the current collector is noticeable for the sample CB_Gr_TT while no material is detached from the sample CB/GO_Gr_TT.

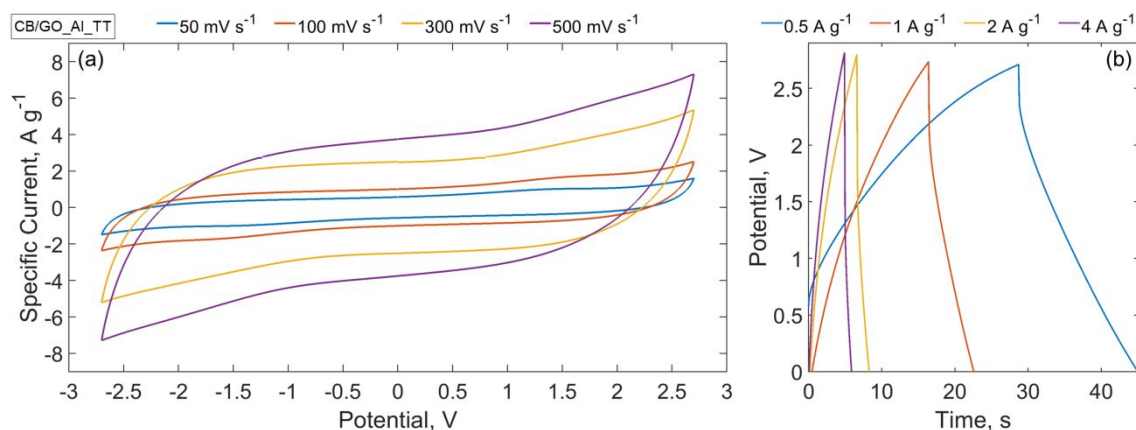


Figure S2. (a) CVs and (b) GCs of SCs made with CB/GO_Al_TT at different scan rates, from 50 to 500 mV s⁻¹, between -2.7 and +2.7 V and different specific currents, from 0.5 to 4 A g⁻¹, in a 1.5 M solution of TEMA-TFB in ACN.

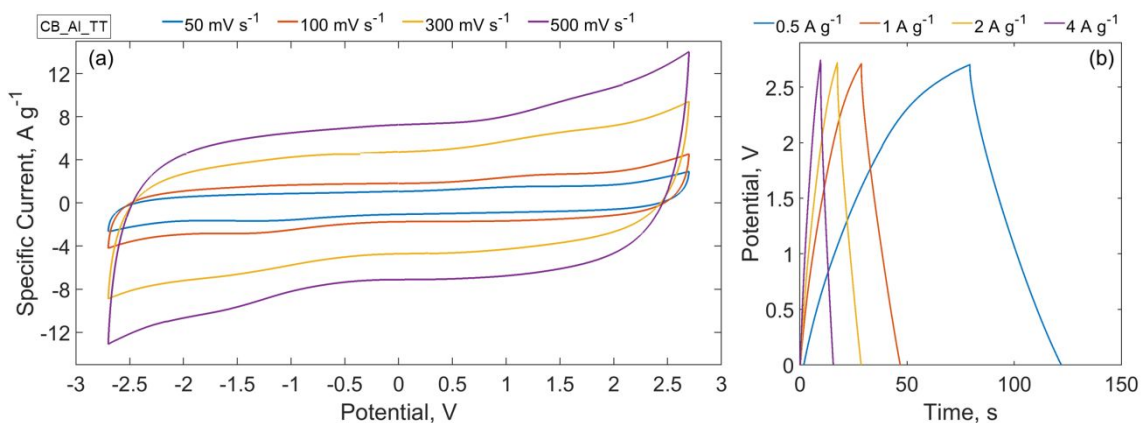


Figure S3. (a) CVs and (b) GCs of SCs made with CB_Al_TT at different scan rates, from 50 to 500 mV s⁻¹, between -2.7 and +2.7 V and different specific currents, from 0.5 to 4 A g⁻¹, in a 1.5 M solution of TEMA-TFB in ACN.

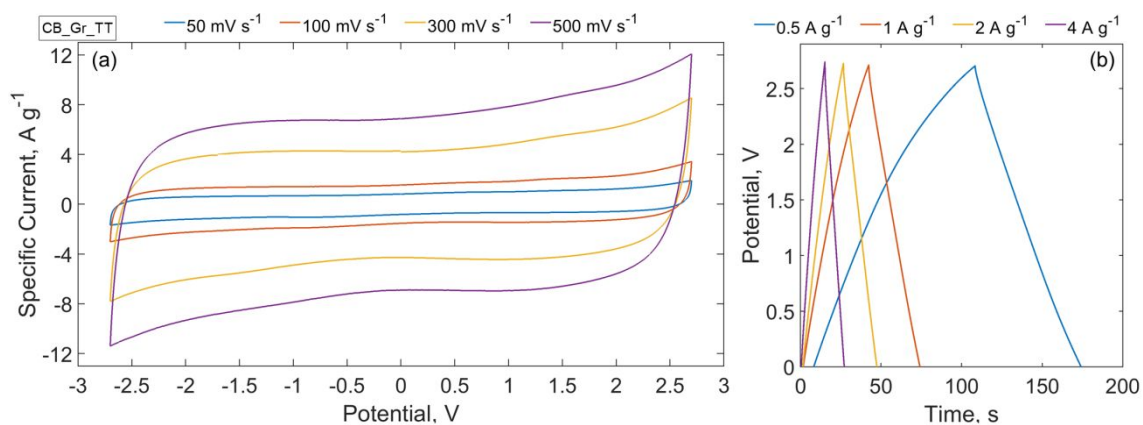


Figure S4. (a) CVs and (b) GCs of SCs made with CB_Gr_TT at different scan rates, from 50 to 500 mV s^{-1} , between -2.7 and +2.7 V and different specific currents, from 0.5 to 4 A g^{-1} , in a 1.5 M solution of TEMA-TFB in ACN.

Table S1. Comparison of the four devices of Figure 6 in terms of active mass loading, capacitance and specific capacitance, with the values measured through GCs at specific currents ranging from 0.5 A g^{-1} to 4 A g^{-1} .

Sample	Active mass [mg]	Capacitance range [mF]	Specific Capacitance range [F g ⁻¹]
CB_Al_TT	3.68	31.6-51.6	34.3-56.1
CB_Gr_TT	3.33	42.2-47.3	50.6-56.7
CB/GO_Al_TT	3.16	13.1-25.6	16.6-32.4
CB/GO_Gr_TT	2.33	13.1-21.7	22.5-37.2