Supporting Information

Importance of Electrodes Preparation Methodology in Supercapacitor Application

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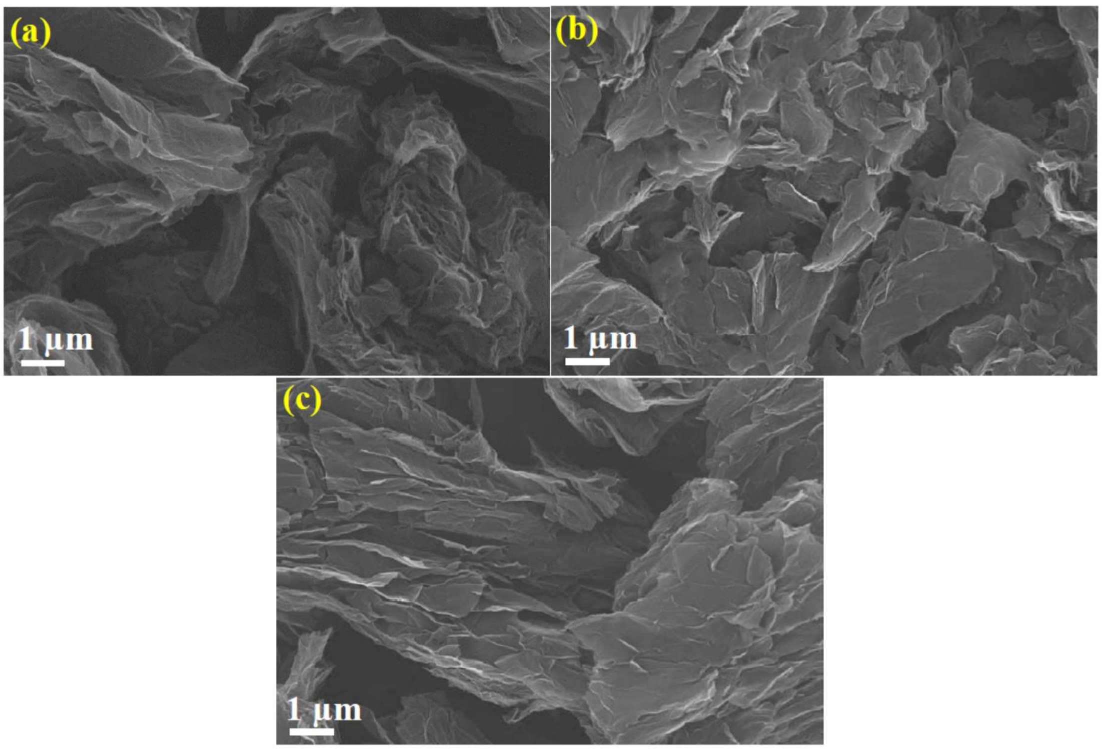

Figure S1: Low magnification SEM images of OFG as an active material on Pt electrodes having different binders (a) Nafion (b) PVDF and (c) PTFE. Electrodes were prepared with EG as a solvent for OFG dispersion and electrodes were dried at 170 °C.

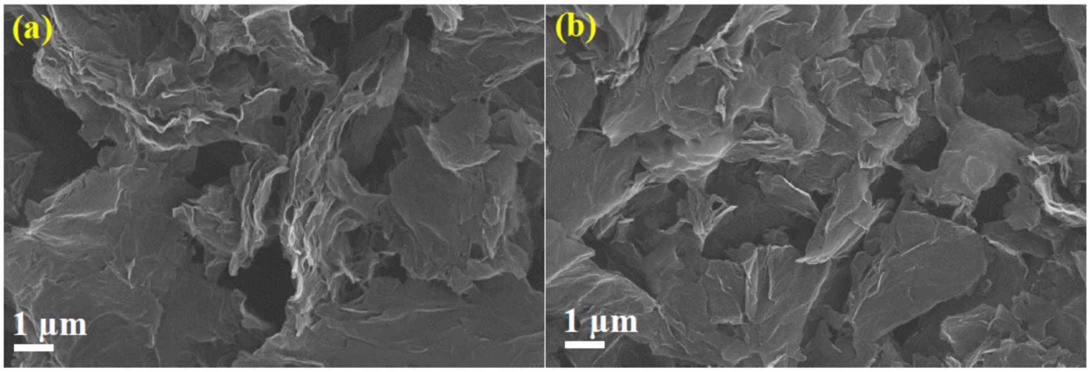

Figure S2: Low magnification SEM images of OFG as an active material on Pt electrodes prepared using PVDF binder in different solvents for OFG dispersion (a) NMP and (b) EG. Electrodes were dried at 170 °C.

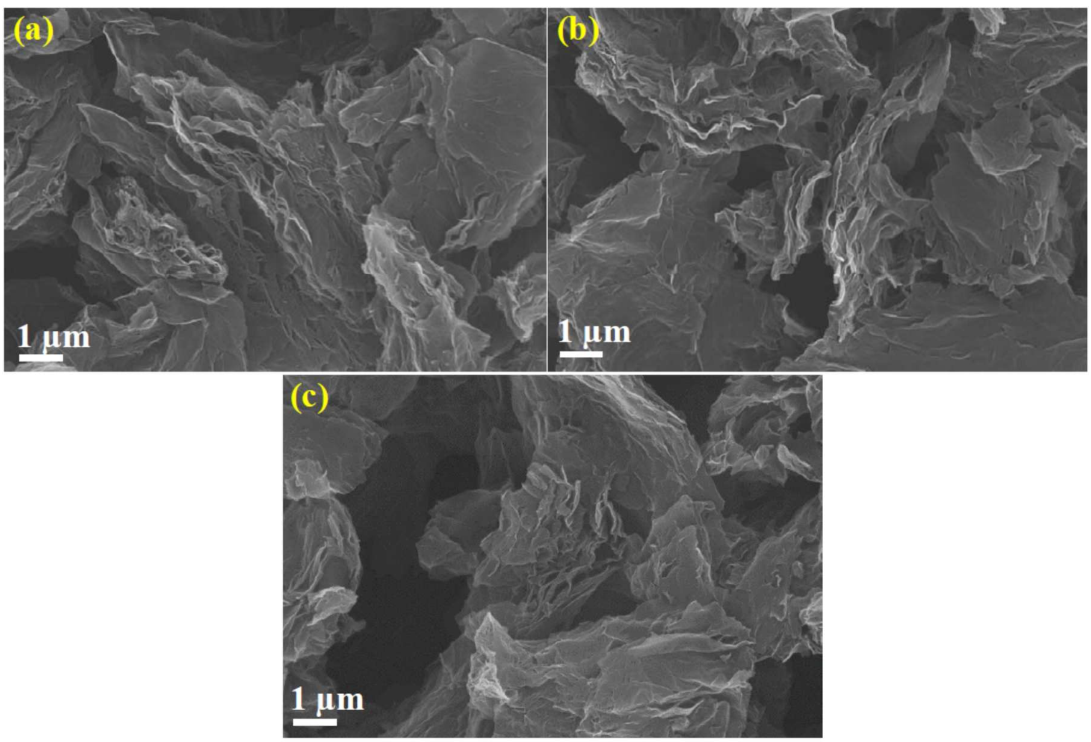

Figure S3: Low magnification SEM images of OFG as an active material on Pt electrodes prepared at different drying temperatures (a) 100 °C (b) 170 °C and (c) 190 °C. The electrodes were prepared using PVDF binder and NMP solvent for OFG dispersion.

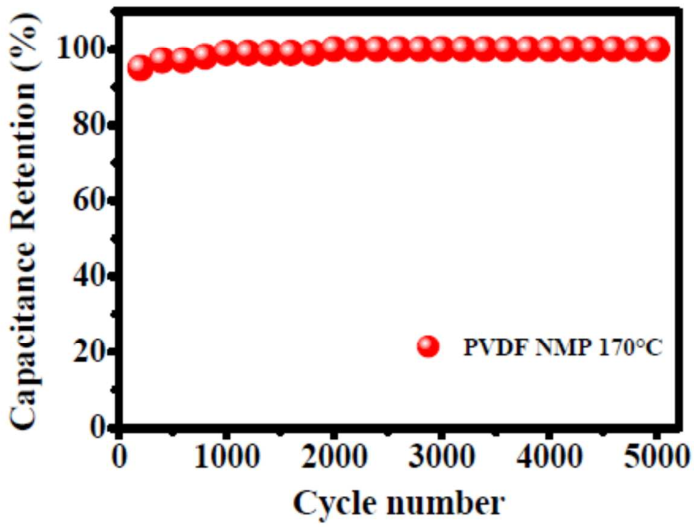

Figure S4. Long term cyclic stability study at 10 A g^{-1} current density for OFG electrode prepared using PVDF binder in NMP solvent for OFG dispersion. Electrodes were dried at 170 °C.

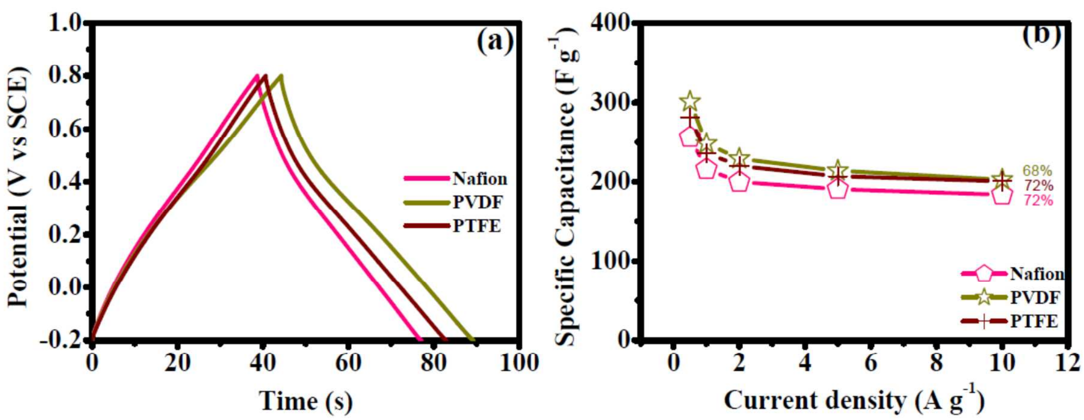

Figure S5. Electrochemical performance of OFG wherein electrodes were prepared with different binders while EG was used as solvent for OFG dispersion. Electrodes were dried at 170 °C. (a) Galvanostatic charge/discharge results at a current density of 10 Ag^{-1}. (b) Variation of specific capacitances with current densities.

Table S1. Specific capacitances (F g^{-1}) of OFG at different current densities for electrodes prepared using different binders while EG was used as solvent for OFG dispersion. Electrodes were dried at 170 °C.

Current density ($A\ g^{-1}$)	**Nafion**	**PVDF**	**PTFE**
10	184	203	201
5	191	214	207
2	200	229	220
1	216	248	236
0.5	256	301	281
Retention	72%	68%	72%

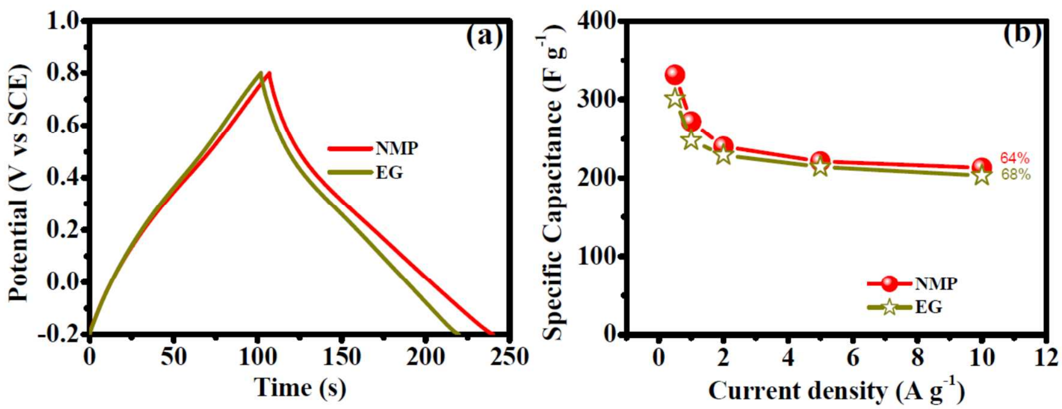

Figure S6. Electrochemical performance of OFG for electrodes prepared from different solvents for OFG dispersion while PVDF was used as a binder. Electrodes were dried at 170 °C. (a) Galvanostatic charge/discharge results at a current density of 10 Ag^{-1}. (b) Variation of specific capacitances with current densities.

Table S2. Specific capacitances (F g^{-1}) of OFG obtained at different current densities for electrodes prepared from different solvents for OFG dispersion while PVDF was used as a binder and electrodes were dried at 170 °C.

Current density (A g^{-1})	NMP	EG
10	213	203
5	221	214
2	240	229
1	272	248
0.5	331	301
Retention	64%	68%

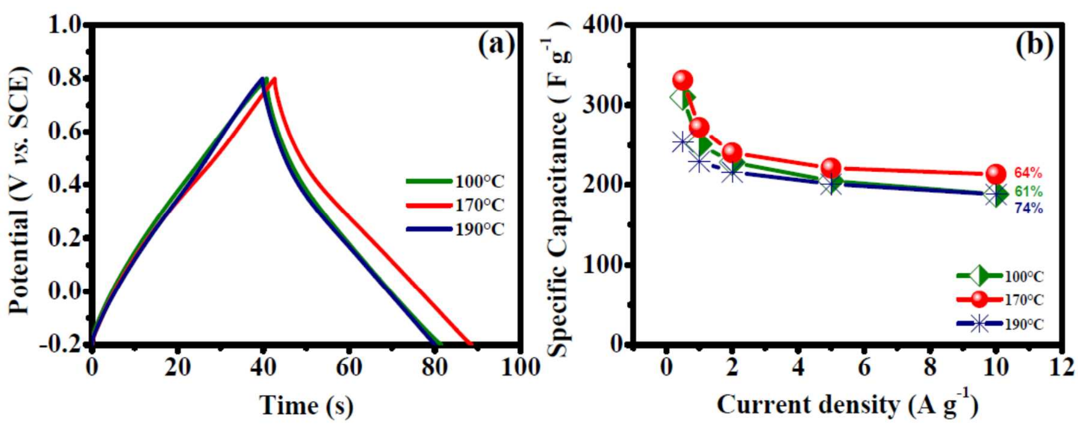

Figure S7. Electrochemical performance of OFG for electrodes prepared from at different drying temperatures with NMP as a solvent for OFG dispersion while PVDF was used as a binder. Electrodes were dried at 170 °C. (a) Galvanostatic charge/discharge results at a current density of 10 Ag^{-1}. (b) Variation of specific capacitances with current densities.

Table S3. Specific capacitance values (F g^{-1}) of OFG obtained at different current densities of galvanostatic charge/discharge experiments for electrodes prepared at different drying temperatures (100,170 and 190 °C) while NMP was used for OFG dispersion and PVDF was used as binder.

Current density (A g^{-1})	**100 °C**	**170 °C**	**190 °C**
10	188	213	188
5	205	221	201
2	228	240	216
1	251	272	229
0.5	310	331	254
Retention	61%	64%	74%

Table S4. Physical properties of NMP and EG

Properties	**NMP**	**EG**
Dielectric Constant at 25 °C	32.2	37.7
Boiling Point (°C)	202	195
Density (g/mL) at 25 °C	1.03	1.11
Viscosity (mPa.s) at 25 °C	1.66	16.10

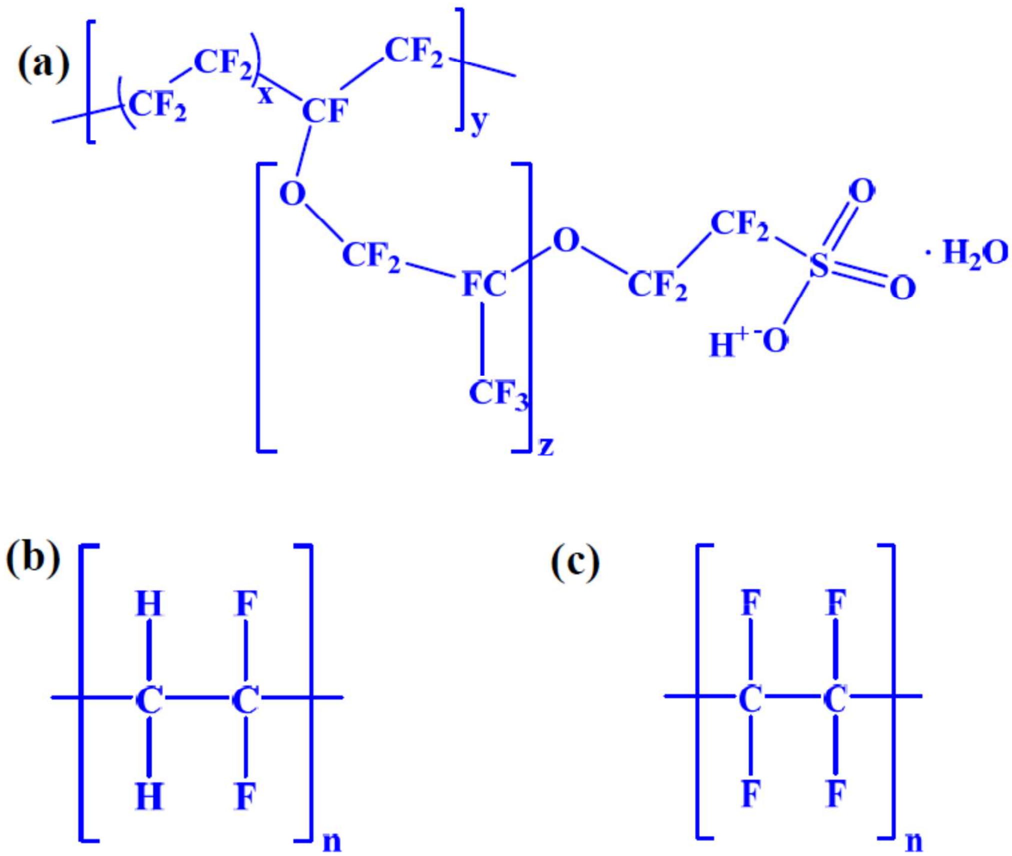

Figure S8. Structures of binders. (a) Nafion, (b) PVDF, and (c) PTFE.