

Supplementary Materials

Cationic-Surfactant (CTAB) Assisted Preparation of 2D Graphitic Carbon Nitride (g-C₃N₄) Sheets Advances Supercapacitive Performance

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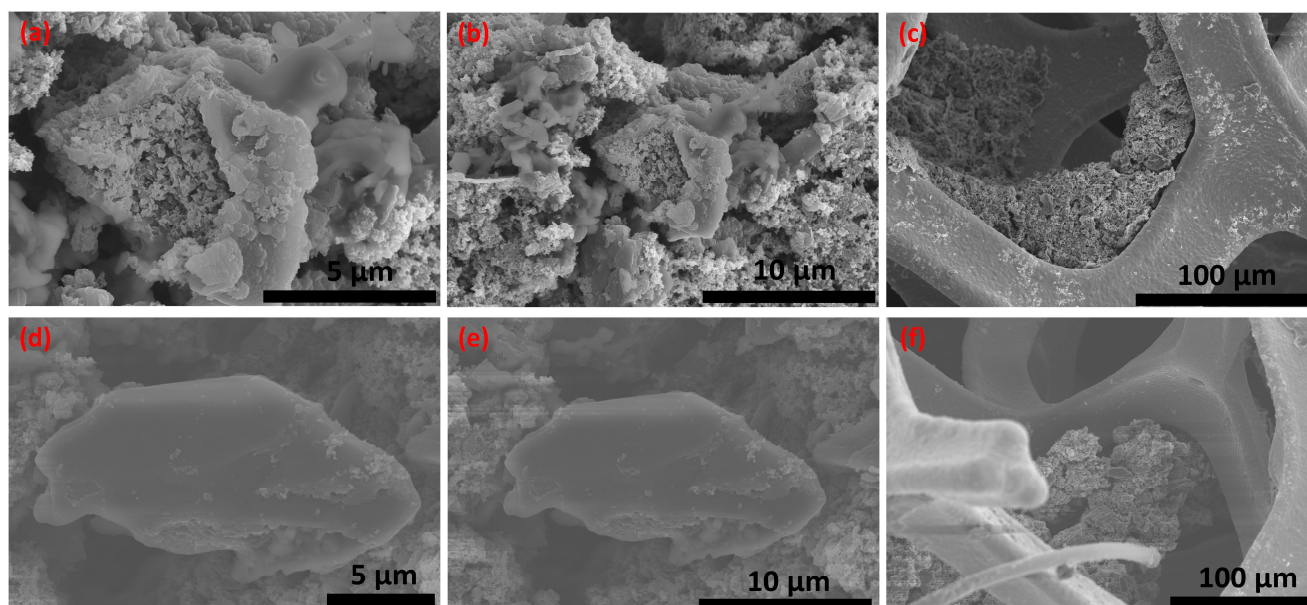


Figure S1. FE-SEM analysis after stability, (a–c) different magnification FE-SEM images of g-C₃N₄ without CTAB, and (d–f) different magnification FE-SEM images of g-C₃N₄ with CTAB.

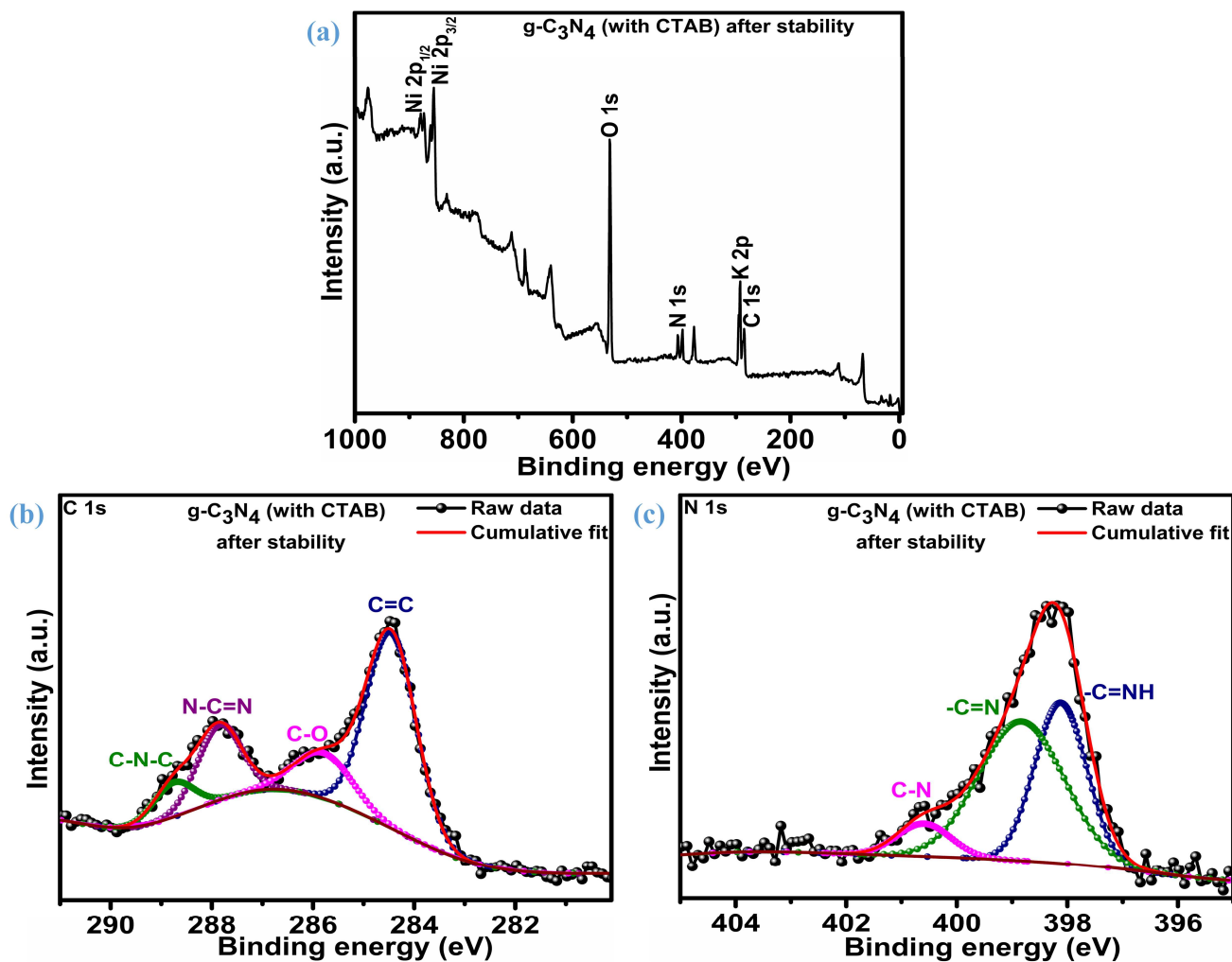


Figure S2. XPS analysis of CTAB integrated g-C₃N₄ on Ni-foam after stability (a) survey spectrum, (b) C 1s spectrum, and (c) N 1s spectrum.

Table S1. Values of the elements connected in series estimated from the fitting of the EIS spectrum of the g-C₃N₄ samples before and after stability.

Sample Name	R_s (Ω , cm ²)	Q_1 (F.S ⁿ⁻¹)	n_1	R_{ct1} (Ω , cm ²)	Q_2 (F.S ⁿ⁻¹)	n_2	R_{ct2} (k Ω , cm ²)	W
g-C ₃ N ₄ without CTAB before stability	0.54	0.0055	0.76	5.81	0.0049	0.81	1.11	0.72
g-C ₃ N ₄ without CTAB after stability	0.50	0.0043	0.80	4.0	0.0025	0.86	1.51	0.016
g-C ₃ N ₄ with CTAB before stability	0.44	0.0099	0.61	2.44	0.0080	0.10	9.02	0.91
g-C ₃ N ₄ with CTAB after stability	0.24	0.029	0.26	2.42	0.0066	0.82	12.61	0.02

Table S2. Comparative analysis of the electrochemical performance of g-C₃N₄-based electrodes.

Electrode material	Specific capacitance	Stability (%)	Cycle numbers (n)	Ref.
g-C ₃ N ₄	73.2 F.g ⁻¹	-	-	[3]
g-C ₃ N ₄	29.1 mAh.g ⁻¹	-	-	[8]
CTAB modified g-C ₃ N ₄	61.1 mAh.g ⁻¹	-	-	[8]
g-C ₃ N ₄	83.7 F.g ⁻¹	-	-	[8]
g-C ₃ N ₄ nanofibers	263.75 F.g ⁻¹	93.6	2000	[16]
g-C ₃ N ₄	71 F.g ⁻¹	-	-	[16]
g-C ₃ N ₄ (Chemical oxidation methd)	133.6 F.g ⁻¹	-	-	[40]
g-C ₃ N ₄ (Thermal oxidation methd)	170.1 F.g ⁻¹	95.9	1000	[40]
g-C ₃ N ₄	117.3 F.g ⁻¹	70.8	5000	This work
CTAB integrated g-C ₃ N ₄	162.8 F.g ⁻¹	74.9	5000	This work