

Supporting Information

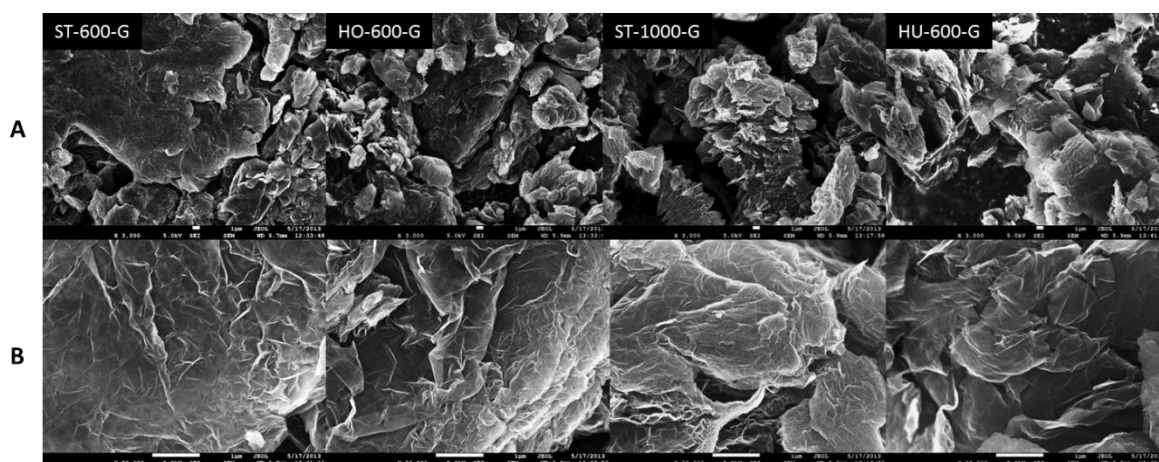


Figure S1. Scanning electron micrographs of reference graphenes prepared by Staudenmaier (ST) at 600 °C and 1000 °C, Hofmann (HO) at 600 °C, and Hummers (HU) at 600 °C. Magnification of (A) 3000x and (B) 20 000x. Scale bar of 1μm.

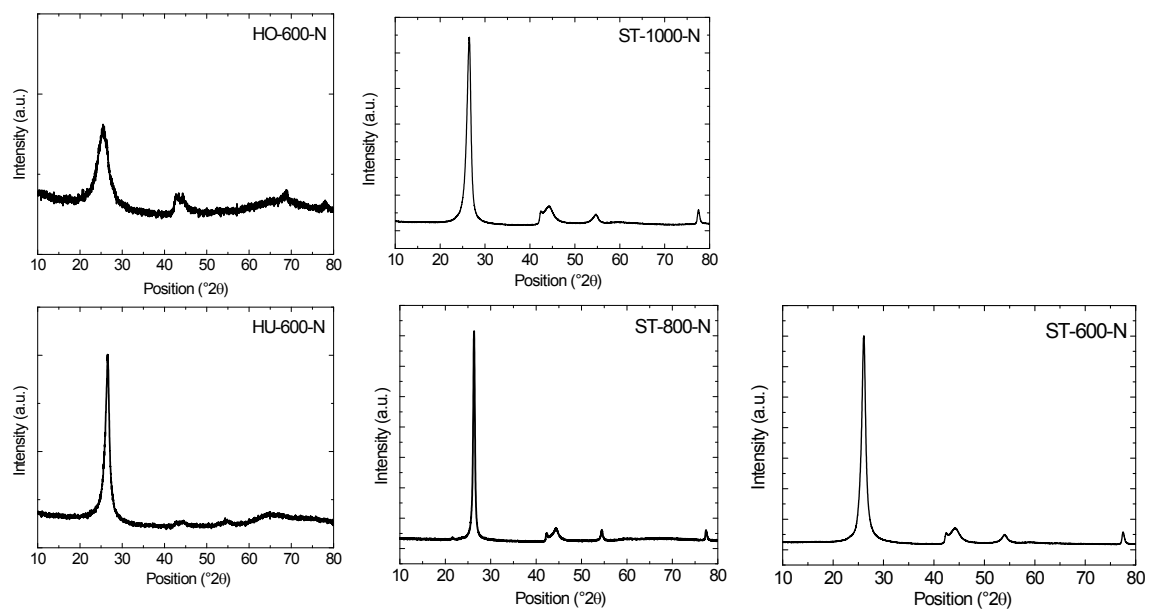


Figure S2. XRD of N-doped materials.

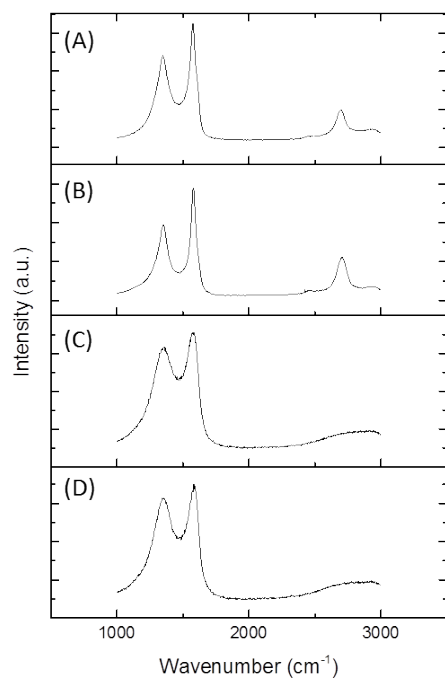


Figure S3. Raman spectra for reference graphenes prepared by Staudenmaier (ST) (A) at 600 °C and (B) at 1000 °C, (C) Hofmann (HO) at 600 °C , and (D) Hummers (HU) at 600 °C.

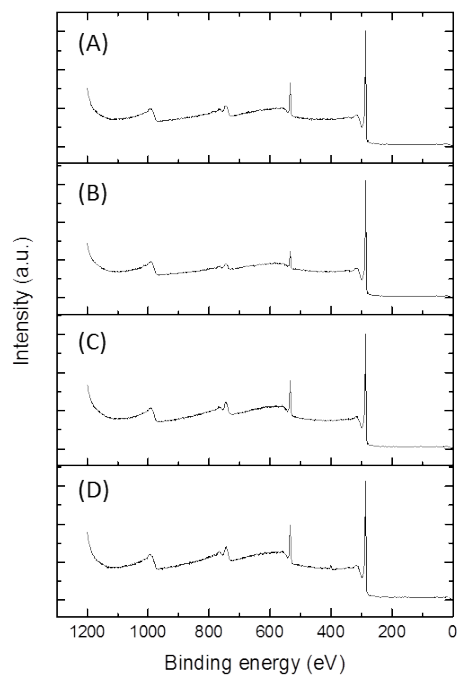


Figure S4. Wide scan XPS for reference graphenes prepared by Staudenmaier (ST) (A) at 600 °C and (B) at 1000 °C, (C) Hofmann (HO) at 600 °C, and (D) Hummers (HU) at 600 °C.

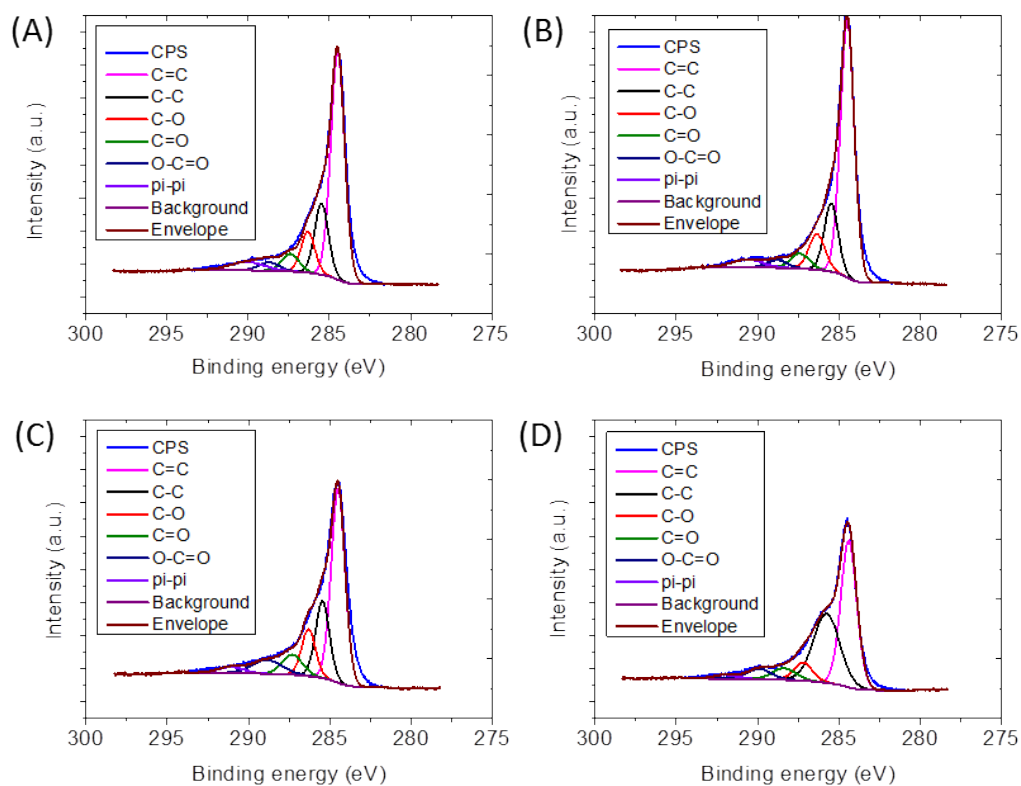


Figure S5. High resolution XPS spectra of C1s of reference graphenes prepared by Staudenmaier (ST) at (A) 600 °C and (B) 1000 °C, (C) Hofmann (HO) at 600 °C, and (D) Hummers (HU) at 600 °C.

Table S1. Resistivity of graphenes exfoliated in inert atmosphere.

Sample	Specific resistivity ($\Omega\cdot\text{cm}$)	Resistivity (Ω)
HO 600 N2	5.5×10^{-2}	3.8
HU 600 N2	3.3×10^{-2}	2.0
ST 600 N2	1.7×10^{-3}	5.8×10^{-2}
ST 800 N2	2.2×10^{-3}	1.1×10^{-1}
ST 1000 N2	2.8×10^{-3}	1.3×10^{-1}