

Supporting Information

Direct Thermochemical CO₂ Reduction to Reduced Graphene Oxide-like Nanomaterial: Implications for Environmental and Energy Storage and Conversion Applications

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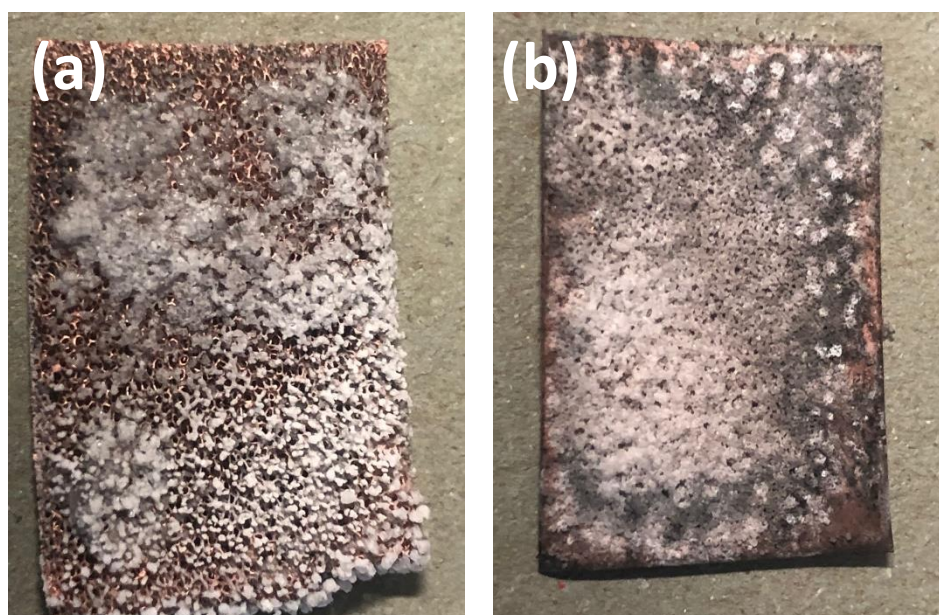
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Table S1. Summary table of synthesis parameters for prepared CO₂-derived GO samples.

Sample ID.	Substrate Type	CO ₂ flow rate (mL/min)	Water content g _{H2O} /g _{CO2}	Rxn time (hrs)
S.N.1	Foam	30	0	1
S.N.2				6
S.N.3				12
S.N.4			0.14	3
S.N.5				12
S.N.6	Foil			1
S.N.7				6

**Figure S1.** (a) Digital images of copper foam and (b) foil after NaBH₄ deposition

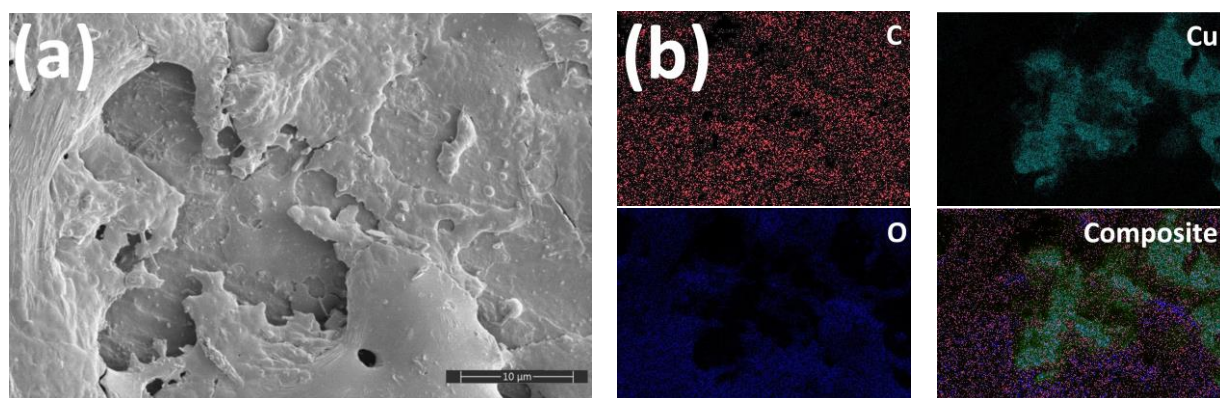


Figure S2. (a) FESEM and (b) corresponding FESEM/EDS elemental mapping for the S.N.6 sample before HCl washing.

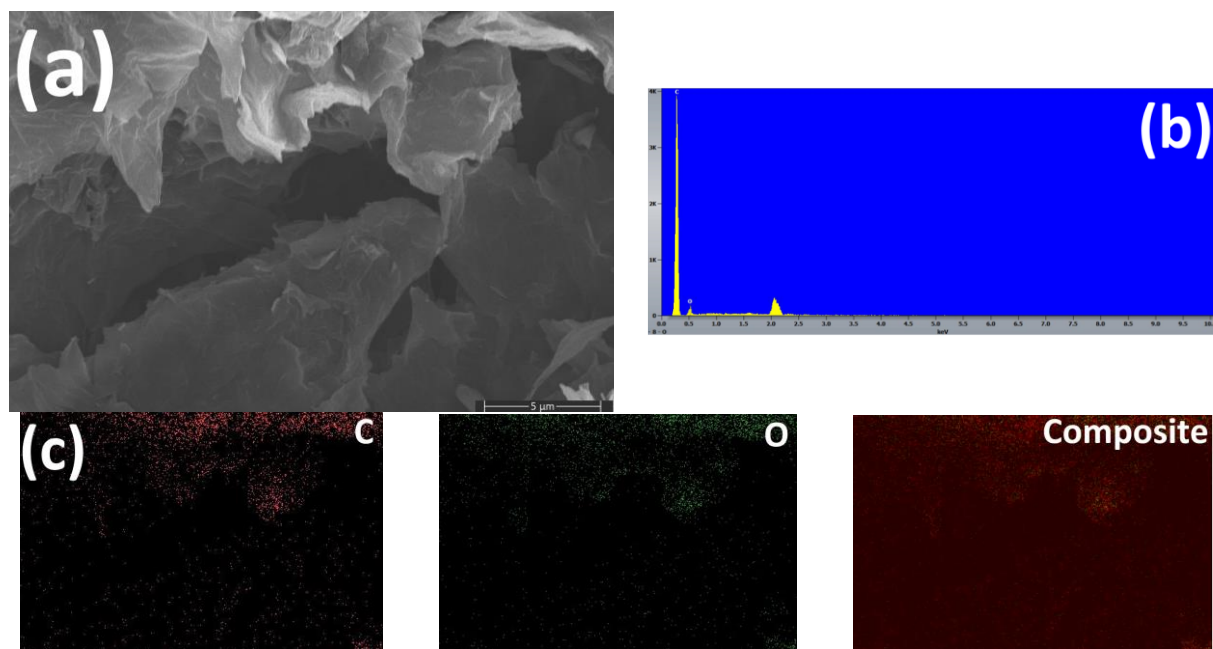


Figure S3. (a) FESEM, (b) EDS spectra, and (c) corresponding FESEM/EDS elemental mapping for the S.N.1 sample after HCl washing.

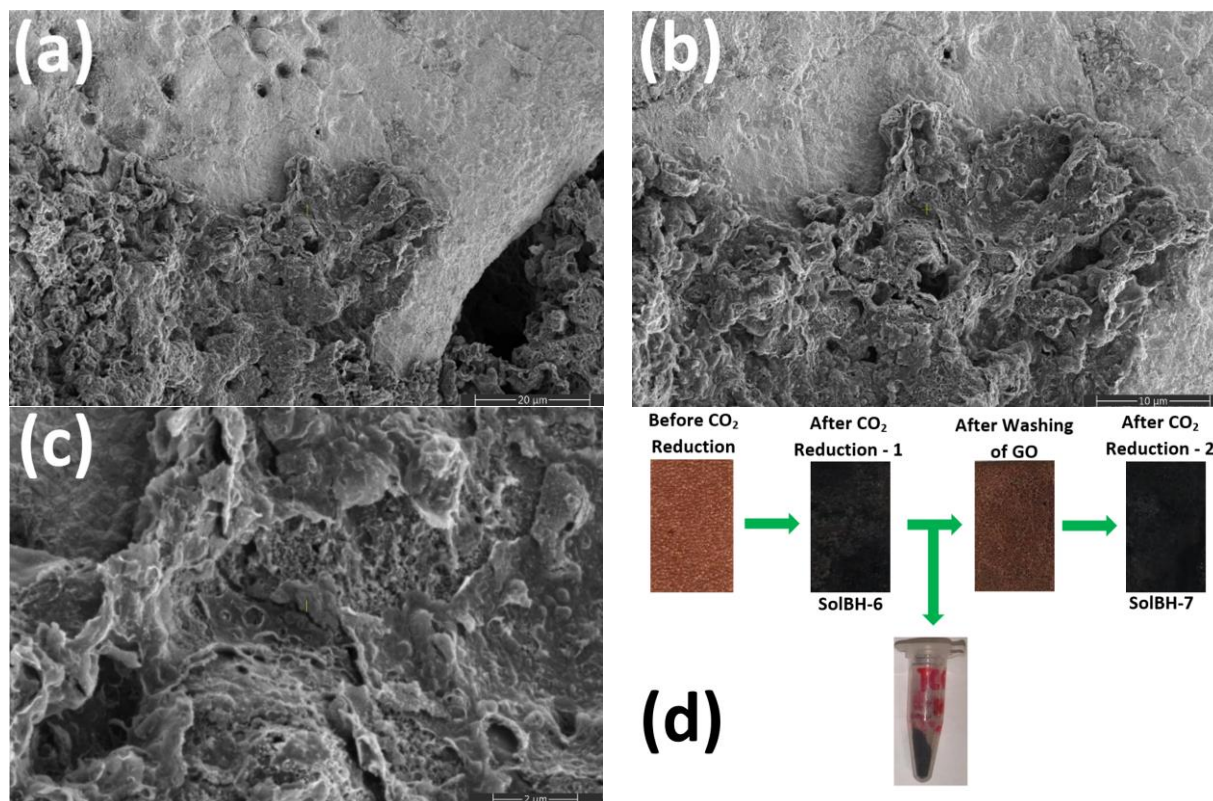


Figure S4. (a-c) Different magnification FESEM after CO_2 reduction and HCl washing on surface of foam which produced the S.N.1 sample. (d) Schematic with digital images showing the foam surface from before CO_2 reduction to after reduction, recycling, and reuse from S.N.1 to S.N.3.

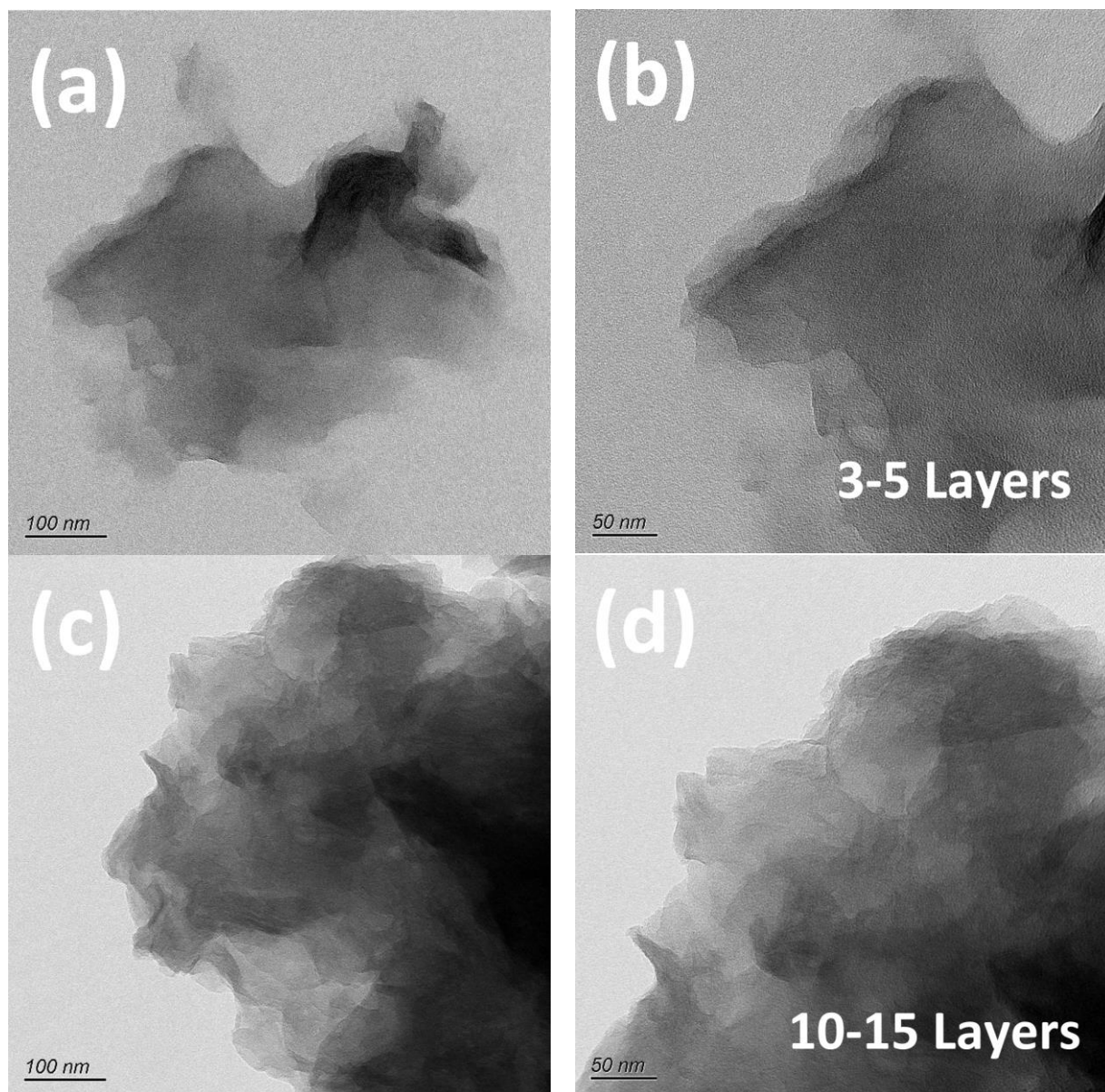


Figure S5. (a, b) Different magnification HRTEM images of S.N.6 sample showing regions with 3-5 layers rGO and (c, d) regions with 10-15 layers rGO.