

Supporting Information for

Facile Alkali-assisted Synthesis of g-C₃N₄ Materials and Their High-performance Catalytic Application in Solvent-free Cycloaddition of CO₂ to Epoxides

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Table S1 Product mass of g-C₃N₄ samples prepared by 9 g of GndCl.

Sample	g-C ₃ N ₄ -T-direct					g-C ₃ N ₄ -T-NaOH				
	400	425	450	475	500	400	425	450	475	500
Mass (g)	4.0	3.1	2.7	2.6	2.4	3.1	2.9	2.7	2.4	2.0

Table S2 Textural parameters of g-C₃N₄ materials.

Sample	S_{BET} (m ² g ⁻¹)	D_{pore} (nm)	V_{pore} (cm ³ g ⁻¹)
g-C ₃ N ₄ -450-direct	3	2.38	0.018
g-C ₃ N ₄ -475-direct	11	2.83	0.041
g-C ₃ N ₄ -450-NaOH	11	2.63	0.037
g-C ₃ N ₄ -475-NaOH	16	2.44	0.064

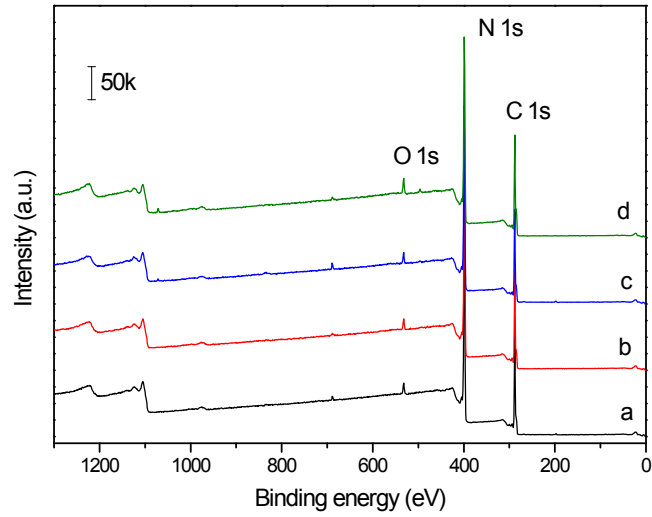


Fig. S1 XPS survey of g-C₃N₄-450-direct (a), g-C₃N₄-475-direct (b), g-C₃N₄-450-NaOH (c), and g-C₃N₄-475-NaOH (d) materials.

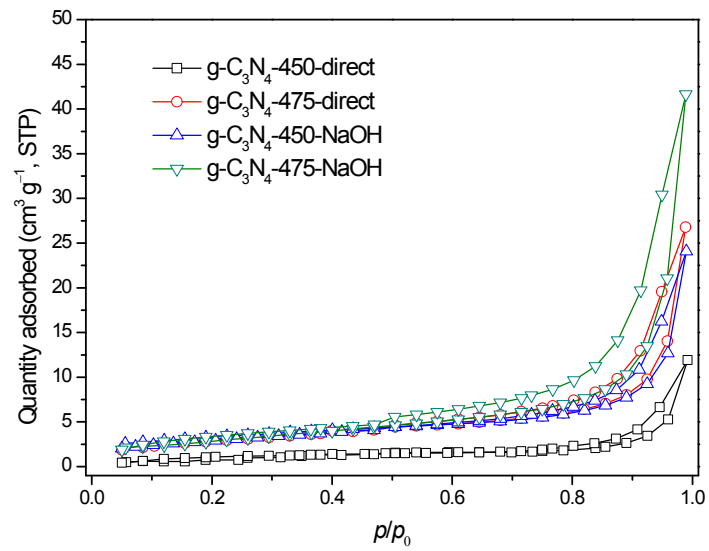


Fig. S2 N₂ adsorption–desorption isotherms of g-C₃N₄ samples.

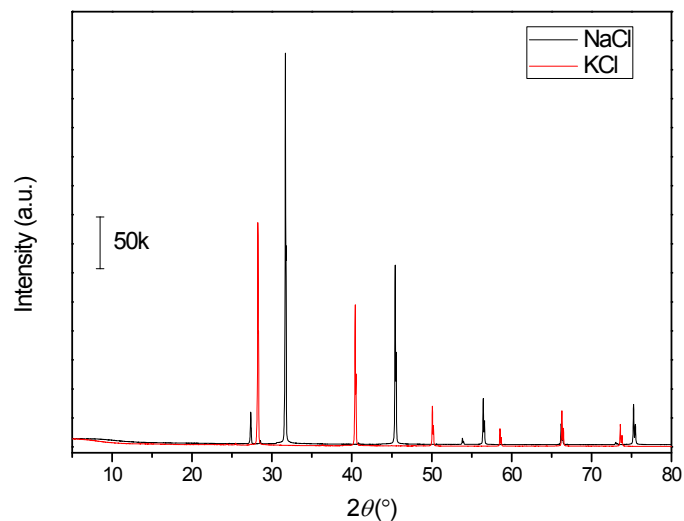


Fig. S3 XRD pattern of white precipitation resulted from mixing GndCl with NaOH (black line) or KOH (red line) in ethanol solution.

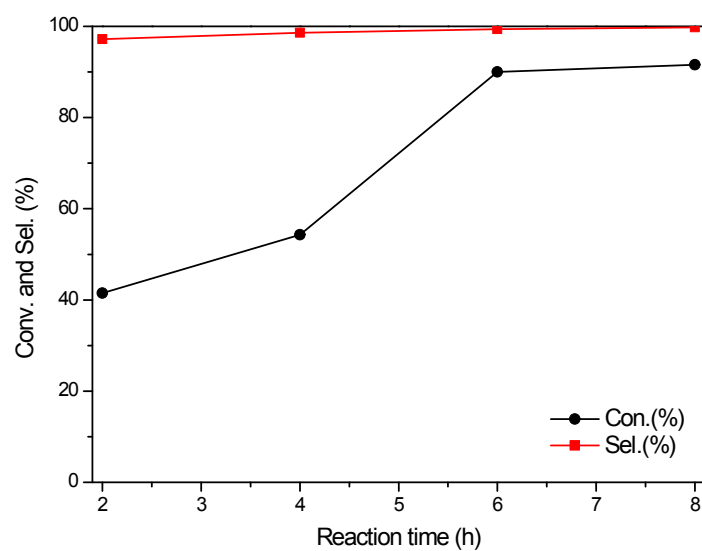


Fig. S4 Evolution of the catalytic activity of $\text{g-C}_3\text{N}_4\text{-475-NaOH}$ during 8 h of reaction time. Reaction conditions: $V_{\text{PO}} = 10 \text{ mL}$, $p_{\text{CO}_2} = 2.0 \text{ MPa}$, $T = 140 \text{ }^\circ\text{C}$, $W_{\text{catal.}} = 0.4 \text{ g}$ and 38 mg of ZnI_2 added.

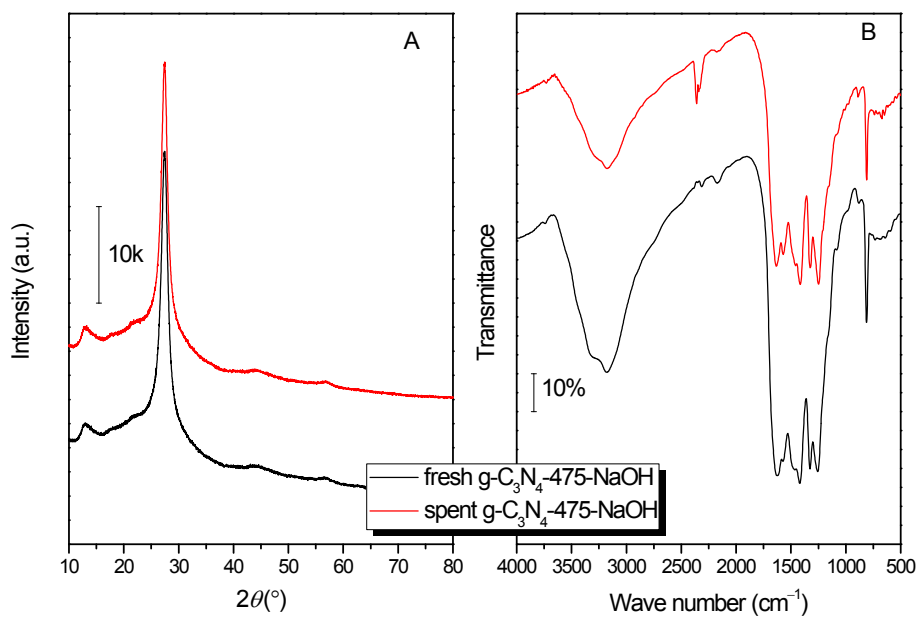


Fig. S5 XRD patterns (A) and FT-IR spectra (B) of the fresh and spent $\text{g-C}_3\text{N}_4\text{-475-NaOH}$ catalysts subjected to five catalytic runs.

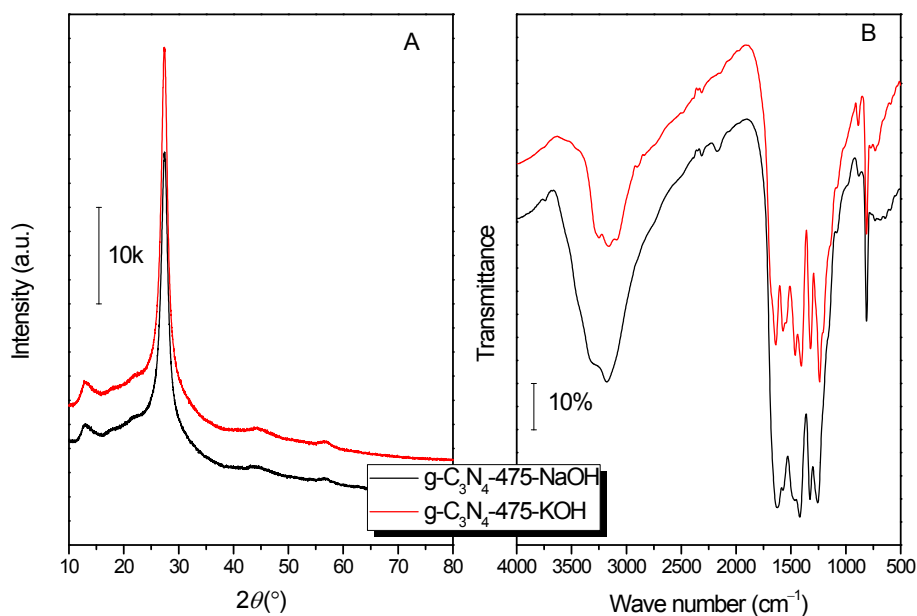


Fig. S6 XRD patterns (A) and FT-IR spectra (B) of $\text{g-C}_3\text{N}_4\text{-475-NaOH}$ and $\text{g-C}_3\text{N}_4\text{-475-KOH}$.