

Supporting Information for

Kinetic Interface Design in Carbon-Doped Mg(OH)₂ Enables Concurrent CO₂ Blocking and Capture

Hashan N. Thenuwara ^{1,2}, W.P. Cathie Lee ¹, Shunnian Wu ¹, Sim Jia Yu ², Siew Yee Wong ²,
Xu Li ^{2**}, Ping Wu ^{1*}

¹ Entropic Interface Group, Engineering Product Development, Singapore University of
Technology and Design, 8 Somapah Road, Singapore 487372

² Institute of Materials Research and Engineering, Agency for Science, Technology and Research
(A*STAR), Fusionopolis Way, Innovis, Singapore 138634

*corresponding author, wuping@sutd.edu.sg

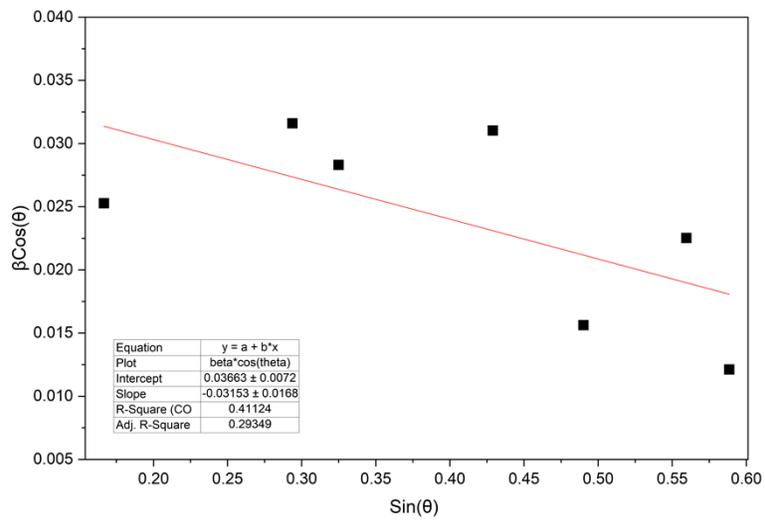
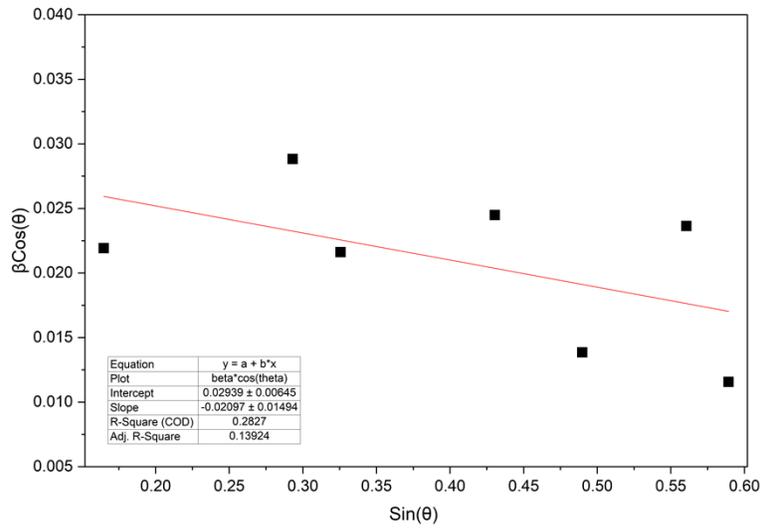


Figure S1. Williamson–Hall analysis for quantitative assessment of crystallite size, lattice microstrain and dislocation density: (a) undoped Mg(OH)₂ and (b) C-doped Mg(OH)₂

Table T1: Comparison of CO₂ adsorption performance among various MgO-based sorbents at low adsorption temperatures (≤ 50 °C).

Sorbent	Activation/ regeneration temperature (°C)	CO ₂ partial pressure	CO ₂ adsorption temperature (°C)	CO ₂ uptake (wt%)	Ref
Spray dried Carbon doped MgO-Mg(OH) ₂	150	1 atm	30	5.45	This study
Spray dried MgO-Mg(OH) ₂	150	1 atm	30	2.25	This study
Commercial MgO	150	1 atm	30	0.56	This study
Electrospun MgO/Mg(OH) ₂	150	1 atm	30	4.12	¹
Cl ⁻ doped MgO/Mg(OH) ₂	150	1 atm	30	4.59	²
SO ₄ ²⁻ doped MgO/Mg(OH) ₂	150	1 atm	30	2.9	²
PO ₄ ²⁻ doped MgO/Mg(OH) ₂	150	1 atm	30	2.9	²
Commercial MgO	150	1 atm	25	0.17	³
MgO-Fe	325	1 atm	25	3.96	⁴
MgO-Ni	325	1 atm	25	6.6	⁴
MgO-ZnO	400	1 atm	25	4.18	⁵

References

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