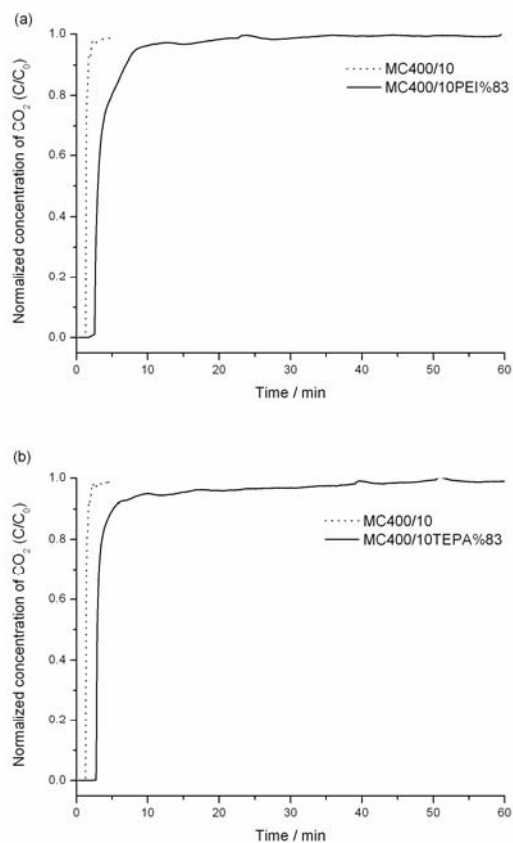


Supporting information

High Efficiency Nanocomposite Sorbents for CO₂ Capture based on Amine-functionalized Mesoporous Capsules

Genggeng Qi,^a Yanbing Wang,^a Luis Estevez,^a Xiaonan Duan,^a Nkechi Anako,^b Ah-Hyung Alissa Park,^b Wen Li,^c Christopher W. Jones^c and Emmanuel P. Giannelis*^a



10 **Fig. S1** Breakthrough plots of the sorbents for CO₂ capture at 75 °C under a pre-humidified test gas (10% CO₂ balanced with Ar). (a) MC400/10PEI%83 = 74 mg, gas flow rate = 20.22 ml min⁻¹. (b) MC400/10TEPA%83 = 68 mg, gas flow rate = 20.98 ml min⁻¹.

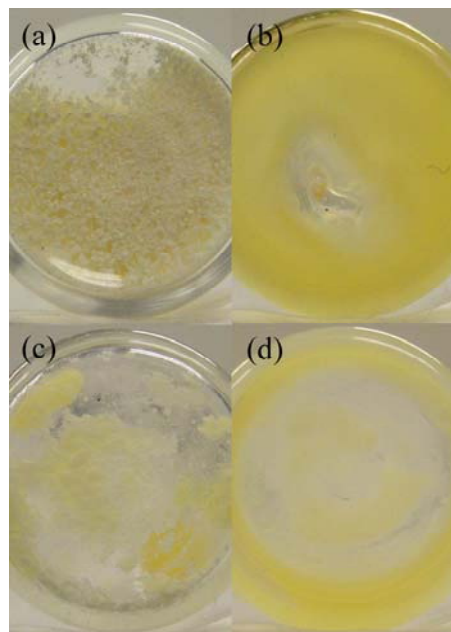


Fig. S2 Sorbents based on various supports with different amine loadings. (a) MC400/10PEI%83; (b) MCM-41PEI%83 (c) SBA-15PEI%83; (d) SiO₂-400PEI%83.

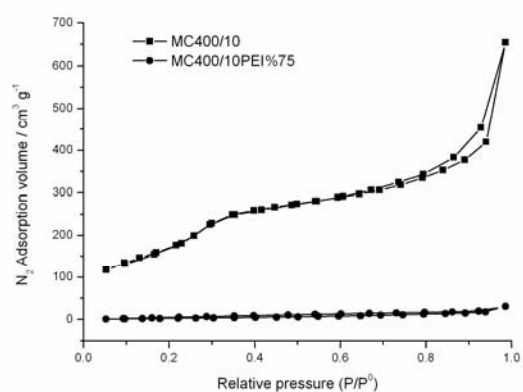
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Fig. S3 Nitrogen adsorption-desorption isotherms of mesoporous silica capsule MC400/10 and PEI impregnated sorbent MC400/10PEI%75.

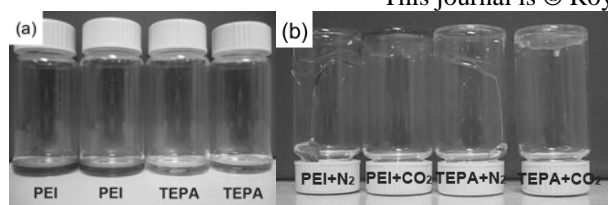
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Fig. S4 Viscosity difference of polyethylenimine before (a) and after CO₂ capture (b). A viscous thin film was observed when the CO₂ gas flowed over the amine in the vials at 75 °C. After CO₂ capture, the four vials were cooled down to room temperature and inverted for 10 s.