Supporting Information

Tailoring morphology of hierarchical catalysts for tuning pore diffusion behaviour: A rational guideline exploiting bench-top Pulsed-Field Gradient (PFG) Nuclear Magnetic Resonance (NMR)

Luke Forster[1], Michal Lutecki[2], Henrik Fordsmand[2], Le Yu[1], Carmine D'Agostino*[1]

[1] School of Chemical Engineering and Analytical Science, The University of Manchester, Oxford Road, Manchester, M13 9PL, United Kingdom

[2] Haldor Topsøe A/S, Haldor Topsøes Allé 1, DK-2800, Kongens Lyngby, Denmark

*Corresponding author

Carmine D'Agostino

Email: carmine.dagostino@manchester.ac.uk

Table S1. Root mean squared displacements (*RMSD*) used to investigate the self-diffusivity of the guest molecules; *n*-octane, water, methanol and ethanol within the alumina carriers Al_2O_3 (1) - Al_2O_3 (8) during PFG NMR diffusometry experiments.

Sample	$RMSD_{OCT}$ (µm)	$RMSD_{H2O}$ (µm)	$RMSD_{MeOH}$ (µm)	$RMSD_{EtOH}$ (µm)
Al_2O_3 (1)	9.70	10.63	9.31	6.39
Al_2O_3 (2)	10.55	11.29	10.30	7.04
Al_2O_3 (3)	11.14	11.34	10.93	7.35
Al_2O_3 (4)	11.64	12.09	11.30	7.75
Al_2O_3 (5)	11.58	11.74	11.26	7.52
Al_2O_3 (6)	12.66	12.65	12.24	8.26
Al_2O_3 (7)	12.70	12.94	12.66	8.69
Al_2O_3 (8)	13.04	13.29	13.61	9.12

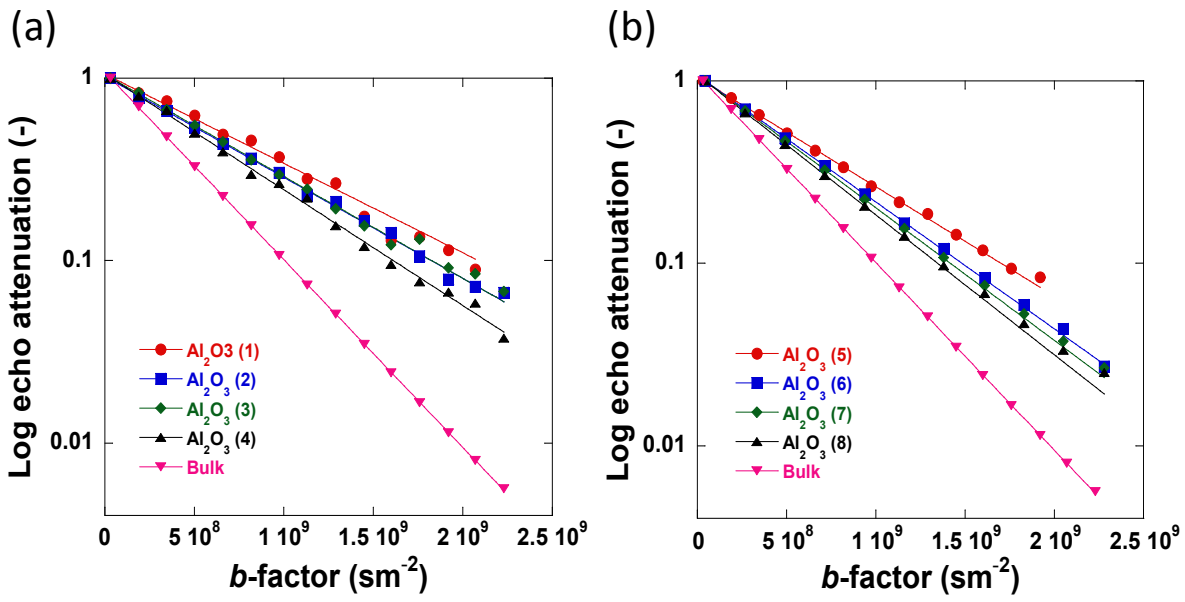

Figure S1. Log attenuation plots of water imbibed within (a) Al_2O_3 (1) – Al_2O_3 (4) and (b) Al_2O_3 (5) – Al_2O_3 (8). Solid lines are fitting to Equation (1).

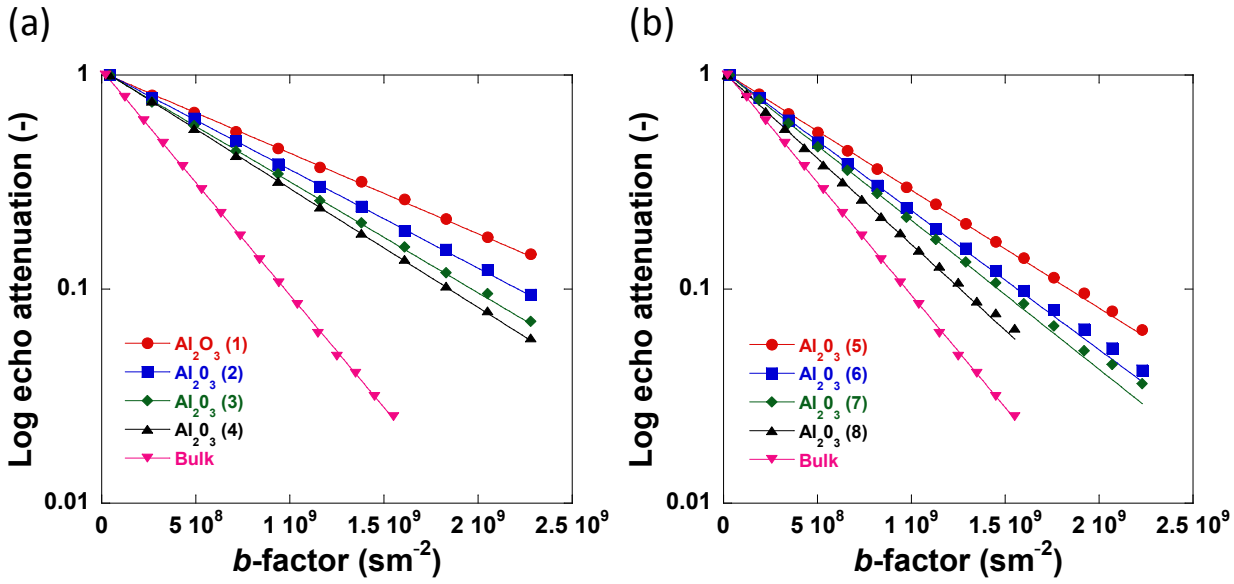

Figure S2. Log attenuation plots of methanol imbibed within (a) Al_2O_3 (1) – Al_2O_3 (4) and (b) Al_2O_3 (5) – Al_2O_3 (8). Solid lines are fitting to Equation (1).

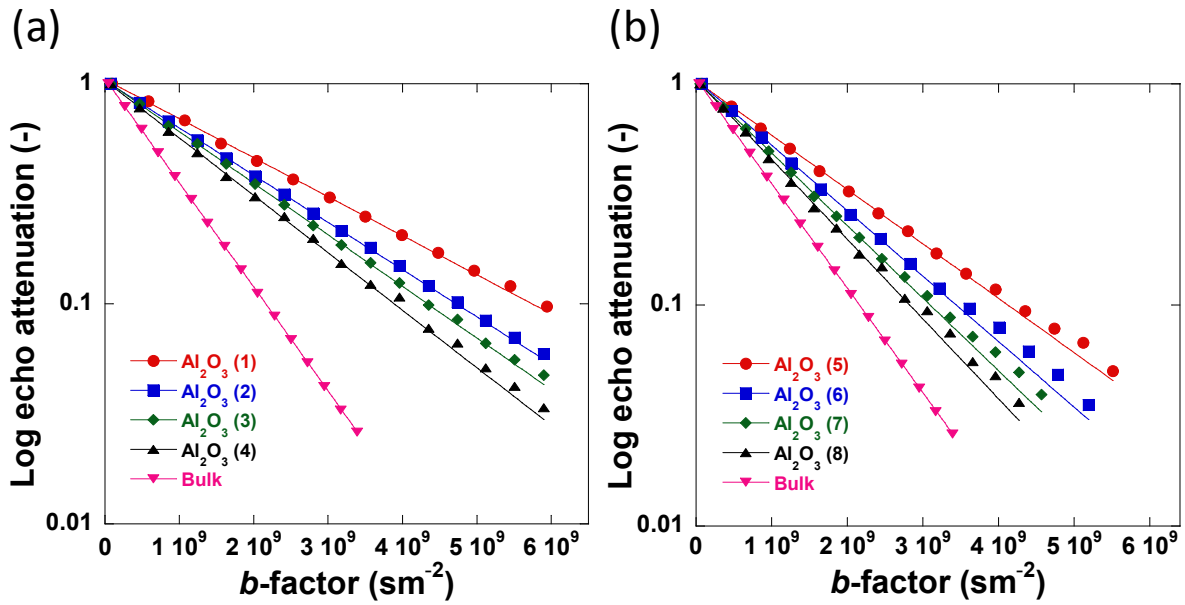

Figure S3. Log attenuation plots of ethanol imbibed within (a) Al_2O_3 (1) – Al_2O_3 (4) and (b) Al_2O_3 (5) – Al_2O_3 (8). Solid lines are fitting to Equation (1).