

Electronic Supplementary Information

Effect of phase-separated structure on CO₂ separation performance of poly(amidoamine) dendrimer immobilized in a poly(ethylene glycol) network

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^1H NMR spectra of PEGDMAs.

Fig. S1 shows ^1H NMR spectra of purified PEG_{1k}DMA (EG unit: 23) and PEG_{2k}DMA (EG unit: 45). A triplet peak at 4.30 ppm (signal c) corresponds to methylene protons next to ester oxygen, indicating progress of the reaction.

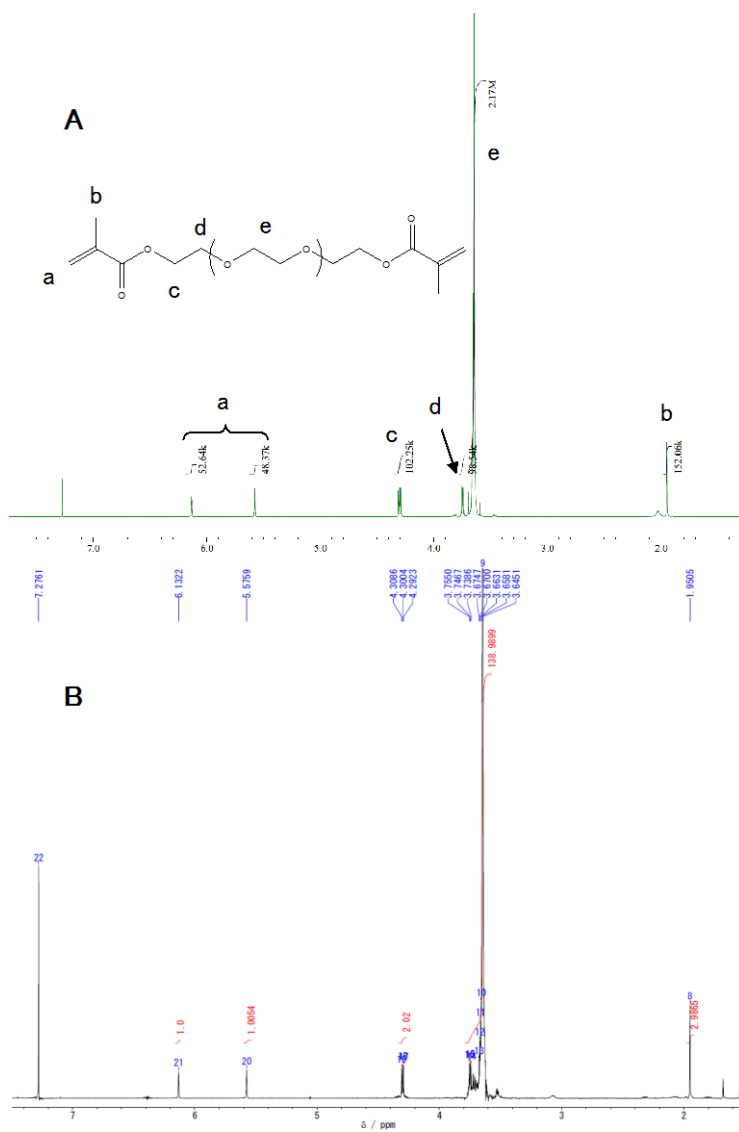


Fig. S1 ^1H NMR spectra of (A) PEG_{1k}DMA and (B) purified PEG_{2k}DMA in CDCl_3 at 298 K. Me_4Si as an internal standard.

Determination of average PAMAM dendrimer domain size.

The processed 2D images at each depth are summed, and the summed image was Fourier transformed to give a plot of $q_m^2 \cdot I(q_m)$ as a function of q_m as represented in Fig. S2. In this case, a sharp peak ($q_m = 3.11 \mu\text{m}^{-1}$) was found, which corresponded to a length of periodic structure $\lambda_m (= 2.02 \mu\text{m}$ by Eq. 4).

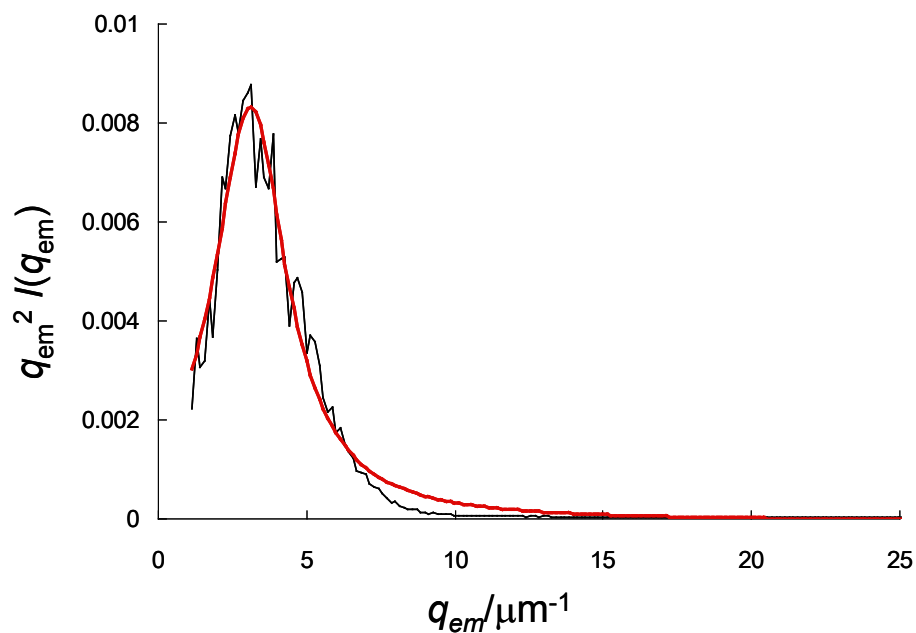


Fig. S2 A Kratky plot of the magnitude of the Fourier transformation as a function of the wavenumber and the Lorentzian fitting. The polymeric membrane contained PAMAM dendrimer with 50 wt% in crosslinked PEGDMA (EG unit: 14).