

Electronic Supplementary Information (ESI) for:

High-Pressure Real-Time ^{129}Xe NMR: Monitoring of Surfactant Conformation during the Self-assembly of Reverse Micelles in Supercritical Carbon Dioxide^{†‡}

Idriss Blakey,^{a,b} Kristofer J. Thurecht^{a,b} and Andrew K. Whittaker^{*a,b}

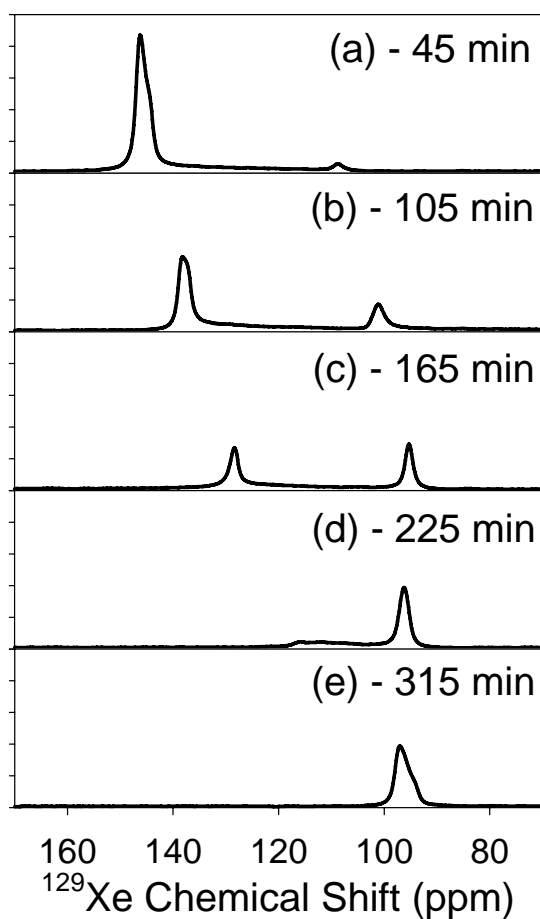
^a The University of Queensland, Centre for Advanced Imaging, St Lucia, Queensland, Australia 4072

^b The University of Queensland, Australian Institute for Bioengineering and Nanotechnology, St Lucia, Queensland, Australia 4072

* Corresponding Author E-mail: a.whittaker@uq.edu.au

Experimental

The CO₂-philic surfactant, PFPECOO⁻NH₄⁺ was prepared using a method reported in the literature.¹ In a typical NMR experiment, 22 mg of PFPECOO⁻NH₄⁺ and 3 μL of water (giving a water to surfactant molar ratio of 20) were placed in a home-build high pressure poly(ether ether ketone) (PEEK) cell, the design of which has been described previously.² The PEEK cell was able to fit within a Bruker 10 mm bird cage resonator within the NMR magnet of a Bruker AMX300 spectrometer. A pressure of 2 MPa of xenon was introduced into the cell and the system was allowed to come to equilibrium at 313 K over five hours. Following this, liquid CO₂ was introduced into the cell using a high-pressure syringe pump to a final applied pressure of 30 MPa. The ^{129}Xe NMR spectra were collected using the standard single-pulse excitation method, with a 90° pulse time of 15 μs , receiver dead time of 15 μs and a repetition time of 10 seconds. The spectral width was 100 kHz and 32 repetitions were co-added.



Supplementary References

- (1) Thurecht, K. J.; Hill, D. J. T.; Whittaker, A. K. *J. Supercrit. Fluids* **2006**, 38, 111.
- (2) Thurecht, K. J.; Hill, D. J. T.; Whittaker, A. K. *Macromol. Chem. Phys.* **2006**, 207, 1539.