

Electronic Supplementary Information

Effects of Interfacial Tension on Formation of Poly(ethylene oxide)-*block*-Polystyrene Micelles from Emulsion

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Measurement of the interfacial tension between the oil and the aqueous phases by the pendant drop method. As shown in Figure S1, the equatorial diameter D and the diameter d at distance D from the bottom of the drop are measured from the drop profile and the interfacial tension is calculated using the following equation: $\gamma = g(\rho_A - \rho_B)D^2/H$, where g and ρ_A (ρ_B) denotes the gravitational constant and the densities of the liquids, respectively, and the value of the shape related parameter $1/H$ depends on the “shape factor” $S = d/D$.¹ The more the drop shape deviates from a sphere, the higher the shape factor and the lower the shape related parameter is.²

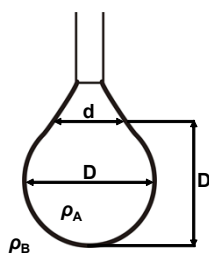


Figure S1. Schematic illustration of a pendant drop.

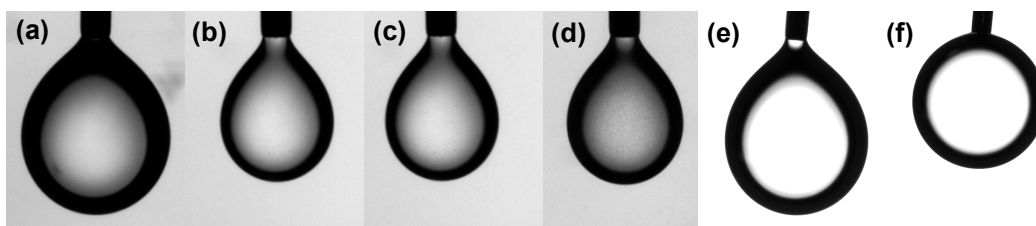


Figure S2. Pendant drop profiles of (a-d) chloroform in (a) water, and water containing (b) 20 vol% THF, (c) 20 vol% DMF, and (d) 15 vol% ethanol, respectively, as well as (e) 1,2-dichloroethane and (f) 1,2-dichloroethane/cyclohexane (60/40 v/v) in water. The two phases were in contact and equilibrated prior to the measurement.

Table S1. Pendant Drop Parameters and the Interfacial Tension Values Determined

	ρ_{op} (g/cm ³)	ρ_{wp} (g/cm ³)	S	$1/H$	γ_{in} (mN/m)
CHCl ₃ /H ₂ O	1.48	1.00	0.58	1.34	33
CHCl ₃ /(H ₂ O/THF 80/20)	1.28	1.00	0.63	1.05	8.8
CHCl ₃ /(H ₂ O/DMF 80/20)	1.42	1.00	0.61	1.13	14.4
CHCl ₃ /(H ₂ O/EtOH 85/15)	1.48	0.99	0.65	0.98	14.9
1,2-dichloroethane/H ₂ O	1.26	1.00	0.57	1.32	28.4
(1,2-dichloroethane/ cyclohexane 60/40)/H ₂ O	1.06	1.00	0.31	6.51	36

ρ_{op} and ρ_{wp} is the density of the organic phase and the water phase, respectively; γ_{in} is the interfacial tension between the organic phase and the water phase; S and $1/H$ are parameters related to the profile of the drop as defined in the text.

- (1) Drelich, J.; Fang, C.; White, C. L. In *Encyclopedia of Surface and Colloid Science*; Somasundaran, P., Ed.; Marcel Dekker Press: New York, 2002, p 3152.
- (2) Stauffer, C. E. *J. Phys. Chem.* **1965**, *69*, 1933.