

Supplementary Information for

Size dependent droplet interfacial tension and surfactant transport in liquid-liquid systems, with applications in shipboard oily bilgewater emulsions

Yun Chen and Cari S. Dutcher

Table S1. Model parameters for selected surfactants

Surfactant	Type	Model*	Γ_{∞} (mol/m ²)	κ (m ³ /mol)	k_{ads} (m ³ /mol·s)	References
CTAB	cationic	L	1.58×10^{-6}	1.98	-	1
STS	anionic	L	9.24×10^{-6}	2.48	-	1
SDS	anionic	m-L	8.96×10^{-6}	0.28	110	1, 2
Aerosol-OT	anionic	D	2.15×10^{-6}	5.4×10^5	-	3
C ₁₀ DMPO	non-ionic	L	3.6×10^{-6}	23.4	-	1
Decanol	non-ionic	L	8.8×10^{-6}	25.6	-	1
C ₁₀ EO ₄	non-ionic	L	3.3×10^{-6}	257	-	1
TritonX-100	non-ionic	F	3.5×10^{-6}	2220	-	1
TritonX-165	non-ionic	L	2.3×10^{-6}	1220	-	1
Propanol		F	7.1×10^{-6}	5.5×10^{-3}	1.1	2, 4
Butanol		F	6×10^{-6}	2.1×10^{-2}	1.6	2, 4
Hexanol		F	6×10^{-6}	0.19	16	2, 4
Heptanol		F	6.4×10^{-6}	0.9	100	2, 4
Octanol		m-L	6×10^{-6}	4.8	310	2, 4
n-decanol		L	6.5×10^{-6}	-	6.5	5
C ₁₂ E ₆	non-ionic	F	3.5×10^{-6}	-	4	5
C ₁₂ E ₈	non-ionic	F	6.8×10^{-6}	-	8.7	5
C ₁₄ E ₈	non-ionic	F	2.7×10^{-6}	-	8	5
PEG-PFPE	non-ionic	L	3.4×10^{-6}	3000	18	6

*L: Langmuir isotherm; m-L: modified-Langmuir isotherm; D: Davies isotherm; F: Frumkin isotherm
Caution should be used when comparing values calculated from different models.

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