**Supporting Information**

**The Effect of Biocompatible Esters and Alcohols as Cosurfactants on Structure and Solubilization Behavior of the Zwitterionic Surfactant Tetradecyldimethylamine Oxide**

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**1. Rheological Measurements**

a)****

b)

**Figure S1**: Storage modulus G´, loss modulus G´´ and complex viscosity η\* as a function of the frequency f at 25 °C for the systems of 100 mM TDMAO and 94 mM (a) or 123 mM (b) ethyl benzoate.

**2. SANS Analysis of Lamellar Phases**

The SANS data in Fig. 3 were fitted with a model of planar lamellae of thickness D for which the scattering intensity is given by:

 (S1)

where SLDlam and SLDs  are the scattering length densities of lamellae and solvent, respectively.

**3. Composition and Data for the Samples Studied by Means of Light Scattering**

The data displayed in Figure 5 were obtained for samples always containing 100 mM TDMAO and in addition the following concentrations of alcohol/ester and decane. Given are in addition the effective molecular weight Mw,eff and the droplet radius R calculated from it.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| geraniol [mM] | 0 | 7 | 17 | 21 |
| decane [mM | 42 | 49 | 56 | 95 |
| R [nm] | 2.6 | 3.0 | 3.2 | 4.8 |
| Mw,eff [104 g/mol] | 4.1 | 6.3 | 7.0 | 24.3 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| citronellol [mM] | 0 | 7 | 17 | 21 |
| decane [mM] | 42 | 51 | 59 | 78 |
| R [nm] | 2.6 | 3.2 | 3.4 | 4.4 |
| Mw,eff [104 g/mol] | 4.1 | 7.3 | 8.8 | 18.4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 3,7-dimethyl-1-octanol [mM] | 0 | 7 | 17 | 21 |
| decane [mM] | 42 | 50 | 58 | 66 |
| R [nm] | 2.6 | 3.1 | 3.3 | 3.5 |
| Mw,eff [104 g/mol] | 4.1 | 6.8 | 7.8 | 9.2 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ethyl benzoate [mM] | 0 | 40 | 81 | 121 | 160 | 200 | 238 |
| decane [mM] | 42 | 67 | 86 | 106 | 108 | 108 | 107 |
| R [nm] | 2.6 | 3.2 | 3.8 | 4.5 | 4.5 | 4.7 | 5.0 |
| Mw,eff [104 g/mol] | 4.1 | 8.0 | 13.3 | 22.9 | 22.7 | 26.6 | 31.3 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| benzyl acetate [mM] | 0 | 18 | 35 | 51 | 69 | 84 | 104 | 120 |
| decane [mM] | 42 | 44 | 45 | 47 | 50 | 58 | 78 | 84 |
| R [nm] | 2.6 | 2.5 | 2.5 | 2.3 | 2.2 | 2.3 | 2.7 | 2.9 |
| Mw,eff [104 g/mol] | 4.1 | 3.1 | 3.0 | 2.8 | 2.6 | 2.8 | 4.9 | 5.7 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ethyl salicylate [mM] | 0 | 30 | 60 | 91 | 121 | 150 |
| decane [mM] | 42 | 58 | 68 | 84 | 96 | 88 |
| R [nm] | 2.6 | 3.4 | 5.3 | 4.3 | 4.7 | 4.8 |
| Mw,eff [104 g/mol] | 4.1 | 9.2 | 11.8 | 20.7 | 25.9 | 29.4 |