

# Additions and Corrections

Experimental Studies on the Adsorption of Two Surfactants on Solid–Aqueous Interfaces: Adsorption Isotherms and Kinetics

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In our original article,<sup>1</sup> we used a quartz crystal microbalance with dissipation (QCM-D) to measure adsorption isotherms for aqueous C<sub>12</sub>E<sub>6</sub> and CTAB surfactants on gold and silica surfaces. XPS analysis and contact angle measurements indicated that both surfaces were hydrophilic. Careful characterization of the surfaces and quantification of the adsorption isotherms allowed us to conclude that

- (1) molecular-scale surface roughness should be considered when QCM-D data are to be compared to ellipsometry measurements for surfactant adsorption isotherms;
- (2) surface roughness may alter the structure of adsorbed surfactant aggregates, and this effect seems to depend on the morphology of the surface aggregates as well as on the scale of the surface roughness; and
- (3) C<sub>12</sub>E<sub>6</sub> forms monolayer-like structures on both surfaces considered whereas CTAB yields bilayer-like structures.

We also measured the kinetics of adsorption and concluded that the nature of the surfactants seems to be the primary parameter that determines the kinetics of adsorption.

It was recently brought to our attention that the data shown in Table 2 of the original article are not correct. The corrected Table is given below.

On the basis of these corrected data, obtained by considering the surface area per headgroup for both surfactants at the water–air interface, we can no longer conclude that CTAB yields bilayer-like structures on both surfaces, although the results are still consistent with a monolayer-like structure for C<sub>12</sub>E<sub>6</sub> on both surfaces.

It is possible that the surface area per headgroup obtained at the water–air interface is not representative of the surface coverage observed at the solid–water interface, and it is also possible that the chemical heterogeneity of the surfaces evidenced by XPS analysis, coupled with the molecular-scale surface roughness shown by AFM, is responsible for patchy surfactant adsorption.

**Table 2. Adsorbed Surfactant (nmol) Calculated and from Experiment<sup>a</sup>**

	C <sub>12</sub> E <sub>6</sub> (calcd/exptl)	CTAB (calcd/exptl)
gold	0.444/~0.38	0.502/~0.59
silica	0.316/~0.27	0.357/~0.42

<sup>a</sup> The calculated values correspond to one monolayer formed on the total crystal surface exposed to the surfactant solution in the QCM-D experiments shown in Figure 3 of our article.

Unfortunately, the revised Table presented above affects some of our former conclusions:

- (1) We can no longer claim that the data presented in Table 2 corroborate our conclusion according to which QCM-D does not overestimate the amount of surfactant adsorbed (although this conclusion is still supported by the results shown in Figure 3 of our article);
- (2) We can no longer state that because CTAB yields bilayer-like structures, if a CTAB micelle adsorbs on one surface the individual surfactants would not need to rearrange as much as C<sub>12</sub>E<sub>6</sub> surfactants have to when one C<sub>12</sub>E<sub>6</sub> micelle adsorbs (Figures 6–8 in the original article). Our data do indicate, as discussed at length in the original article, that the mechanism of CTAB adsorption is dominated by the adsorption of individual surfactants. This observation is not affected by the data shown in Table 2.

In conclusion, our revised Table 2 indicates that C<sub>12</sub>E<sub>6</sub> surfactants form monolayer-like structures on both gold and silica surfaces, whereas CTAB yields structures with more surfactants than a monolayer-like structure but fewer than a bilayer-like structure. No other conclusions in our original article are affected by the erroneous data reported in the original Table 2.

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