

Asymmetric partitioning of anions at interfaces: a Hofmeister series study

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After phase separation in two phase finite systems of zwitterionic surfactants or proteins in water, the electrolyte concentration is different in the two layers. We present the results for two different systems:

- 1) aqueous dispersions of dioctanoyl-phosphatidylcholine¹ and
- 2) aqueous dispersions of lysozyme

In both cases the presence of electrolytes significantly alters the phase separation curves.^{1,2}

The concentration of the anion in the two phases is asymmetric, and depends primarily on the polarizability and size of the anion. In the case of lysozyme, the ion distribution between the two phases is discussed in terms of the protein surface roughness and of the specific binding sites [figure 1]. The competition for protein sites seems to be driven by dispersion forces missing from conventional theories that are limited to electrostatic forces alone.

1. *J. Phys. Chem. B* **2007**, *111*, 589-597.

2. *J. Phys. Chem. B* **2009**, *113*, 8124-8127.

