

Abstract Submitted
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Aggregation Behavior of Charged Surfactants and their Mixtures in Ionic Liquids¹ LANG CHEN, HARRY BERMUDEZ, University of Massachusetts Amherst — Room-temperature ionic liquids (ILs) have been recently explored as extraordinary solvent with potential opportunities for numerous applications. We set out to obtain a better understanding of the aggregation behavior of charged surfactants within ILs. From phase diagrams and isotherms in several distinct ILs, a connection between solubility of the surfactant and the physical properties of the underlying ionic liquid was established. We conclude that the interfacial energy is crucial in determining aggregation behavior while electrostatic interactions can be largely ignored. This study was extended to include mixtures of cationic and anionic surfactants where our data further demonstrate near-complete charge screening. Mixtures of charged surfactants in ILs can therefore be considered as nearly ideal, in sharp contrast to aqueous solutions. The results here give insight into the nature of self-assembly of surfactants in ILs and the interaction between solutes and IL solvents.

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