LIPOPHILIC SURFACTANT SELF-ASSEMBLY IN AQUEOUS MEDIA: LIQUID CRYSTAL NANODISPERSIONS

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The phase behavior of water/lipophilic surfactant systems at high water contents is characterized by the existence of rich phase equilibria consisting of liquid crystalline phases in equilibrium with water. This type of phase equilibria gives rise to colloidal dispersions (e.g. vesicles, hexosomes, cubosomes) of interest both from fundamental and applied viewpoints. The types of liquid crystals or self-assembled structures that form in surfactant systems is controlled by the interplay of interactions between surfactant hydrophilic/lipophilic moieties and solvent and on surfactant geometric factors. Reverse structures, such as reverse hexagonal liquid crystals, are favored in lipophilic surfactant systems. In this talk the aggregation behavior of representative water/lipophilic surfactant systems will be discussed with emphasis on diglyceride-based surfactants. It will be shown that liquid crystalline dispersions with improved properties can be obtained by tuning conveniently the surfactant film curvature.