IMPACT OF AMPHIPHILIC NANOSTRUCTURES ON FORMATION AND RHEOLOGY OF INTERFACIAL LAYERS AND ON FOAM FILM DRAINAGE

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S u m m a r y

The aim of the present studies is to clarify how the surfactant adsorption layer properties are related to the course of the drainage parameters of microscopic foam films in the special case of aqueous solutions containing premicellar amphiphilic nanostructures. The scope of the research covers the adsorption dynamics, construction of equilibrium adsorption isotherms, surface rheology of interfacial layers, and foam film drainage kinetics. It is established that, in the premicellar domain, there are concentration intervals, where the considerable irregularities of adsorption layer properties are observed: several plateau regions in the surface tension isotherms, unusual changes of the surface rheological characteristics, *etc.* The systematic investigation of the drainage of foam films obtained from these solutions show that the dependences of basic kinetic parameters of the films on the amphiphile concentration run in synchrony with changes in the adsorption layer properties. Thus, the presence of smaller loose aggregates (premicelles) plays a significant role for the kinetic stability of films. The importance of this research is related to providing a better insight into the initial stages of self-assembling phenomena and into the factors determining the drainage and the stability of thin liquid films. The results have implications for the understanding and the correct prediction of properties of foam systems.