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Coalescence of Bubbles and Stability of Foams

By Sayantan Samanta

VDM Verlag Dr. Müller E.K. Nov 2012, 2012. Taschenbuch. Book Condition: Neu. 220x150x14 mm. Neuware - Coalescence of bubbles is important in many chemical, environmental and biological processes. This monograph presents coalescence of air bubbles in single- and multi-component aqueous solutions of alcohols and nonionic surfactants. Adsorption of these compounds at air water interface was studied by measuring the equilibrium surface tension of the aqueous solutions. The role of electrostatic double layer, hydration and steric forces on coalescence was investigated. It was found that the stability of the thin aqueous film depends on the subtle interplay of intermolecular and surface forces. Stochastic distributions of coalescence time were observed in all systems, which were fitted by the stochastic model. The mean values of the distributions were compared with the predictions of seven film-drainage models. The static test of foam stability was carried out by employing the Ross-Miles test. The foam stability was explained in terms of interfacial viscosity, Marangoni effect, and the intermolecular and surface forces. Scientists and engineers working with surfactants and gas-liquid dispersions will find this monograph immensely useful. 232 pp. Englisch.



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