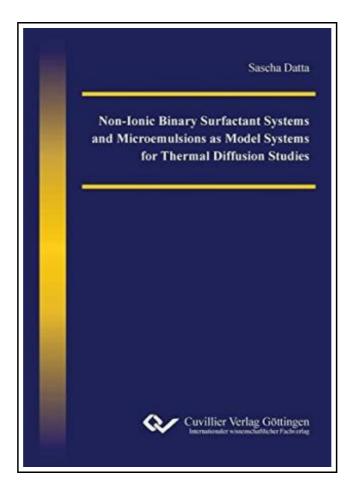
# Non-Ionic Binary Surfactant Systems and Microemulsions as Model Systems for Thermal Diffusion Studies



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# Reviews

This ebook is very gripping and fascinating. Sure, it is engage in, nevertheless an amazing and interesting literature. It is extremely difficult to leave it before concluding, once you begin to read the book.

(Ms. Ora Buckridge)

# NON-IONIC BINARY SURFACTANT SYSTEMS AND MICROEMULSIONS AS MODEL SYSTEMS FOR THERMAL DIFFUSION STUDIES



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Cuvillier Verlag Dez 2011, 2011. Taschenbuch. Book Condition: Neu. 211x148x30 mm. Neuware - Thermal diffusion (or the Soret effect) describes the diffusion of matter in the presence of a temperature gradient. Although this process is studied and applied since more than 100 years the underlying molecular mechanism in liquids is still far from being understood. Colloidal dispersions are versatile model systems to study the thermal diffusion behavior of large particles in a solvent. However, the synthesis of colloidal particles with identical morphology is a complex task. On the other hand aqueous surfactant solutions and microemulsions are promising systems to study the Soret effect. Compared to colloidal particles the aggregates form spontaneously and do not require any additional stabilisation. Furthermore the radius and the shape of the diffusing aggregates, as well as their interfacial tension can be systematically adjusted via the variation of the composition and temperature. In order to address some important aspects of the thermal diffusion behavior three different types of self-assembled surfactant systems were formulated and systematically studied: (i) At first the role of the ionic dye Basantol(r) Yellow 215, which causes an unexpected two-mode signal in the classical Thermal Diffusion Forced Rayleigh Scattering (TDFRS) experiment (Ning et al. Progr Colloid Polym Sci (2006) 133: 111-115), is examined using the system H2O - C12E6. Systematic phase behavior studies and small angle neutron scattering experiments (SANS) proved that the dye is incorporated into the aggregates like an ionic co-surfactant, influencing not only the thermal diffusion behavior but also the overall properties of the systems. These results strongly suggest that one should refrain from the use of surface-active dyes in TDFRS experiments on self-assembled systems. (ii) To study the dependence of the Soret coefficient ST on the radius of the aggregates and the slope of the interfacial tension, both being...

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