



Wetting and Spreading Dynamics (Surfactant Science)

By Victor M. Starov, Manuel G. Velarde, Clayton J. Radke

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Wetting and Spreading Dynamics explains wetting phenomena when a liquid partially or completely wets solid or immiscible liquid surfaces. Written for both newcomers and experienced researchers in the field, the book uses principles and terminology from colloid science, fluid mechanics, and thermodynamics to solve equilibrium and dynamic problems in wetting and spreading.

This book explains how surface forces acting at the three-phase contact line determine equilibrium, hysteresis contact angles, and all other equilibrium and kinetics features of liquids when in contact with solids or other immiscible liquids. It examines the interaction of surface forces, capillary forces, and properties of the transition zone between the bulk liquid (drop or meniscus) and solid substrate.

Detailing the kinetics of spreading over both porous and nonporous substrates, the book observes how surface forces remove “singularity” at the moving three-phase contact line in the latter. The authors introduce novel universal spreading laws that apply to the spreading over porous substrates, which were experimentally verified. They also investigate the influence of surfactants on kinetics of spreading over hydrophobic substrates, spontaneous imbibition into hydrophobic or partially hydrophilic porous bodies.

Drawing together theory and experimental data while presenting over 150 figures to illustrate the concepts, **Wetting and Spreading Dynamics** discusses open questions, challenges, and future directions for research and myriad applications of equilibrium and dynamics of wetting.

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Editorial Review

Review

This book is for both beginners in the area and practitioners alike. It is also suitable for undergraduate and graduate students working in the area.

?S.S. Dukhin, in *Journal of Colloid and Interface Science*

About the Author

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