

## The Science Of Defoaming Theory Experiment And Applications Surfactant Science

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### ~~The Science Of Defoaming Theory~~

Description: Defines terms frequently used in this field. Gives, in particular, specific terms for textiles applications, dry cleaning, etc., but terms for other applications may be introduced. Annex ...

In the 20 years since the publication of the author's multi-contributor volume on defoaming, a vast amount of new work has been published and many new insights have been revealed. A cohesive, single-authored book, *The Science of Defoaming: Theory, Experiment and Applications* provides comprehensive coverage of the topic. It describes the mode of action of antifoams, presenting the relevant theory and the supporting experimental evidence. Beginning with an introductory chapter that discusses the intrinsic properties of foam, the book then describes experimental methods for measuring foam properties important for studying antifoam action and techniques used in establishing the mode of action of antifoams. Since most commercially effective antifoams are oil based, a chapter is devoted to the entry and spreading behavior of oils and the role of thin film forces in determining that behavior. The book reviews the mode of action of antifoams, including theories of antifoam mechanisms and the role of bridging foam films by particles and oil drops. It also addresses issues related to the effect of antifoam concentration on foam formation by air entrainment and the process of deactivation of mixed oil-particle antifoams during dispersal and foam generation. For applications where chemical antifoam use is unacceptable, the text examines mechanical means of defoaming, such as the use of rotary devices and ultrasound. The final chapters consider the application of defoaming in radically different contexts including waterborne latex paints and varnishes, machine washing of textiles, gas-oil separation in crude oil production, and cardiopulmonary bypass surgery. Focusing on the basic science of defoaming, this book presents a balanced view, which also addresses the challenges that may arise for these specific defoaming applications.

Reviews all known antifoam mechanisms, and discusses the appropriate practical approaches for solving foam control problems in a variety of industrial contexts. These range from crude oil production to detergent formulation.

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This book describes in detail the scientific philosophy of the formation and stabilization-destabilization of foams. It presents all hierarchical steps of a foam, starting from the properties of adsorption layers formed by foaming agents, discussing the properties of foam films as the building blocks of a foam, and then describing details of real foams, including many fields of application. The information presented in the book is useful to people working on the formulation of foams or attempting to avoid or destruct foams in unwanted situations.

*Cosmetic Science and Technology: Theoretical Principles and Applications* covers the fundamental aspects of cosmetic science that are necessary to understand material development, formulation, and the dermatological effects that result from the use of these products. The book fulfills this role by offering a comprehensive view of cosmetic science and technology, including environmental and dermatological concerns. As the cosmetics field quickly applies cutting-edge research to high value commercial products that have a large impact in our lives and on the world's economy, this book is an indispensable source of information that is ideal for experienced researchers and scientists, as well as non-scientists who want to learn more about this topic on an introductory level. Covers the science, preparation, function, and interaction of cosmetic products with skin Addresses safety and environmental concerns related to cosmetics and their use Provides a graphical summary with short introductory explanation for each topic Relates product type performance to its main components Describes manufacturing methods of oral care cosmetics and body cosmetics in a systematic manner

*Wetting and Spreading Dynamics* explains how surface forces acting at the three-phase contact line determine equilibrium, hysteresis contact angles, and other equilibrium and kinetics features of liquids when in contact with solids or with other immiscible liquids. It examines the interaction of surface forces, capillary forces, and properties of the transition zone between the bulk liquid and solid substrate. Significantly revised and updated, the Second Edition features new chapters that cover spreading of non-Newtonian liquids over porous substrates,

hysteresis of contact angles on smooth homogeneous substrates, equilibrium and hysteresis contact angles on deformable substrates, and kinetics of simultaneous spreading and evaporation. Drawing together theory and experimental data while presenting over 150 figures to illustrate the concepts, *Wetting and Spreading Dynamics, Second Edition* is a valuable resource written for both newcomers and experienced researchers.

Knowledge of the basic interactions that take place between geological materials and different substances is the first step in understanding the effects of adsorption and other interfacial processes on the quality of rocks and soils, and on driving these processes towards a beneficial or neutral result. *Interfacial Chemistry of Rocks and Soils* examines the different processes at solid and liquid interfaces of soil and rock, presenting a complete analysis that emphasizes the importance of chemical species on these interactions. This Second Edition features novel results in the field and expanded coverage of the kinetics of interfacial processes. New content includes models of heterogeneous isotope exchange, sorption isotherms for heterovalent cation exchange, as well as sorption of anions by chemically modified clays. Summarizing the results and knowledge of the authors' research in this field over several decades, this volume: Explores the individual components of the studied systems: the solid, the solution, and the interface Discusses the characteristics and thermodynamics of the interface Profiles the most important analytical methods in the study of interfacial processes Demonstrates transformations initiated by interfacial processes Outlines avenues of treatment that may solve geological, soil science, and environmental problems Drawn chiefly from the authors' years of research at the Imre Lajos Isotope Laboratory in the Department of Physical Chemistry at the University of Debrecen in Hungary, this book discusses chemical reactions on the surfaces/interfaces of soils and rocks; examines the role of these processes in environmental, colloid and geochemistry; and explores the effects on agricultural, environmental and industrial applications.

Combining academic and industrial viewpoints, this is the definitive stand-alone resource for researchers, students and industrialists. With the latest on foam research, test methods and real-world applications, it provides straightforward answers to why foaming occurs, how it can be avoided, and how different degrees of antifoaming can be achieved.

This indispensable book describes lubricant additives, their synthesis, chemistry, and mode of action. All important areas of application are covered, detailing which lubricants are needed for a particular application. Laboratory and field performance data for each application is provided and the design of cost-effective, environmentally friendly technologies is fully explored. This edition includes new chapters on chlorohydrocarbons, foaming chemistry and physics, antifoams for nonaqueous lubricants, hydrogenated styrene–diene viscosity modifiers, alkylated aromatics, and the impact of REACH and GHS on the lubricant industry.

Silicone is an important class of materials used in applications that range from industrial assembly to everyday consumer products. Silicones are often delivered and synthesized in dispersion forms, the most common being liquid-in-liquid (emulsion), solid-in-liquid (suspension), air-in-liquid (foam) and solid-in air (powder). This book compiles a carefully selected number of topics that are essential to the understanding, creative design and production of silicone dispersions. As such, it provides the first unified description of silicone dispersions in the literature.

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