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Applied Surfactants Sugar-Based Surfactants Surfactants Surfactants and Detergents Application and Characterization of Surfactants Protein-Based Surfactants Industrial Applications of Surfactants IV Ionic Liquid-Based Surfactant Science Biobased Surfactants and Detergents Surfactants and Interfacial Phenomena Gemini Surfactants Surfactant Science and Technology Biobased Surfactants Surfactants in Consumer Products Fluorinated Surfactants An Introduction to Surfactants Specialist Surfactants Natural Surfactants Hydrophile - Lipophile Balance of Surfactants and Solid Particles Surfactants for Enhanced Oil Recovery Applications Surfaces, Interfaces, and Colloids Surfactants: Chemistry, Interfacial Properties, Applications Surfactants and Detergents Novel Surfactants Microbial Surfactants Novel Surfactants The Science of Defoaming Surface Chemistry of Surfactants and Polymers Fluorinated Surfactants and Repellents, Second Edition, Microbial Surfactants Colloidal Silica Chemistry and Technology of Surfactants Biosurfactants Marine Surfactants Surfactants in Precision Cleaning Surfactant Science and Technology Surfactants in Biopharmaceutical Development Surfactant Aggregation A Guide to Formulation and Application of Low-Surfactant Microemulsions in Cleaning-Processes Smart Wormlike Micelles

Applied Surfactants

2006-03-06

while currently available titles either focus on the basics or on very specific subtopics this text meets the need for a comprehensive survey of surfactants and their properties with a strong emphasis on applications and their correlation to the fundamentals the author covers their classification physical properties phase behavior adsorption effects such as wetting spreading and adhesion as well as industrial applications in personal care and cosmetics pharmaceuticals agrochemicals and food products professor tadros is a well known expert on the topic of surfactants with much experience in colloid science here he uses his industrial experience to close the gap between fundamentals of surfactants and their relevance and applications in practice

Sugar-Based Surfactants

2008-12-09

touted as the new darling of the chemical industry alkyl polyglycosides are gaining in popularity due to the fact that they are readily biodegradable low toxic and made from renewable resources sugar based surfactants compiles the most recent and relevant aspects of sugar based surfactants including self association phase behavior and interfacial properties focusing on both colloidal and interfacial science the book deals with the adsorption of surfactants in both the air liquid and solid liquid interfaces it also covers new advances in surfactant science such as the development of a family of potent surface active agents that are non toxic and thus usable in ubiquitous consumer products

Surfactants

2000-03-23

this 2000 book provides an introduction to the nature occurrence physical properties propagation and uses of surfactants in the petroleum industry

Surfactants and Detergents

2021

two common terms used to describe surface active materials are amphiphiles and surfactants the term amphiphile is derived from greek amphis meaning both and philia meaning love or friendship an amphiphilic chemical is a chemical whose molecular structure has one or more hydrophilic groups and one or more hydrophobic groups another greek derived synonymic term used to describe amphiphilic chemicals is amphipathic amphis meaning both and pátheia meaning feeling because all surfactants possess hydrophilic and hydrophobic groups they are termed as amphiphilic or amphipathic compounds the term surfactant a contraction of surface active agent implies the material is active at surfaces surfactants have the tendency to adsorb at surfaces as well as interfaces the difference between surfaces and interfaces is that surfaces involve a gas usually air as one of the phases and the interfaces are boundaries between two immiscible phases five interfaces are possible from three common states of matter solid liquid and gas

Application and Characterization of Surfactants

2017-07-05

the surfactants are among the materials that have a significant importance in everyday life of human the rapid growth in science and technology has opened new horizons in a very wide range in which the surfactants play a major and vital role hence the increasing number of applications as well as arising environmental issues has made this relatively old topic still a hot research theme in the first section of this book some of the applications of surfactants in various fields such as biology and petroleum industry as well as their environmental effects are described in section 2 some experimental techniques used for characterization of the surfactants have been discussed

Protein-Based Surfactants

2001-06-06

describes preparation techniques of protein based surfactants pbs in the laboratory by a variety of chemical and enzymatic means production by using different types of amino acids and marketplace applications of pbs in medical and personal care products detergents cosmetics antimicrobial agents and foods

Industrial Applications of Surfactants IV

1999-01-01

environmental considerations are increasingly shaping the development of many industries this is an overview of surfactants and the environment it goes on to look at new surfactants derived from renewable natural resources such as sucrose seaweed and starch other chapters review a decade of change in the surfactant industry and assess future market trends some of the developments in surfactant technology are presented including gemini twin chained surfactants sulfobetaines alkyl phosphates and the use of alkyl alkoxyates and alkyl glucosides in highly alkaline solutions the volume takes a practical approach throughout

Ionic Liquid-Based Surfactant Science

2015-07-27

this volume will be summarized on the basis of the topics of ionic liquids in the form of chapters and sections it would be emphasized on the synthesis of ionic liquids of different types and stabilization of amphiphilic self assemblies in conventional and newly developed ionic liquids to reveal formulation physicochemical properties microstructures internal dynamics thermodynamics as well as new possible applications it covers topics of ionic liquid assisted micelles and microemulsions in relation to their fundamental characteristics and theories development bio ionic liquids or greener environment friendly solvents and manifold interesting and promising applications of ionic liquid based micelles and microemulsions

Biobased Surfactants and Detergents

2010-01-27

this book provides an overview of biobased surfactants currently under development the first chapter provides

an overview of biobased surfactant research and development in the industrial sector including synthesis applications and current trends and directions in the field several chapters describe the current state of the art of biosurfactants natural amphiphiles synthesized by microorganisms including their synthesis and applications an additional focus area is on the application of biobased surfactants as lung surfactants many chapters involve the chemical and enzymatic synthesis and applications of biobased surfactants consisting of polyols derived from nature particularly mono and di saccharides and amino acids the employment of enzymes as catalysts to direct the synthesis of biobased surfactants is particularly attractive due the reduction of solvent and energy use during the surfactants manufacture and the reduction of purification costs and formation of impurities and by products

Surfactants and Interfacial Phenomena

2012-01-20

now in its fourth edition surfactants and interfacial phenomena explains why and how surfactants operate in interfacial processes such as foaming wetting emulsion formation and detergency and shows the correlations between a surfactant s chemical structure and its action updated and revised to include more modern information along with additional three chapters on surfactants in biology and biotechnology nanotechnology and surfactants and molecular modeling with surfactant systems this is the premier text on the properties and applications of surfactants this book provides an easy to read user friendly resource for industrial chemists and a text for classroom use and is an unparalleled tool for understanding and applying the latest information on surfactants problems are included at the end of each chapter to enhance the reader s understanding along with many tables of data that are not compiled elsewhere only the minimum mathematics is used in the explanation of topics to make it easy to understand and very user friendly

Gemini Surfactants

2003-10-07

generating much interest in both academic and scientific circles gemini surfactants gathers the most up to date research in gemini surfactant production and demonstrates how their properties and performance can revolutionize the current industrial application of these surfactants it surveys the state of special gemini surfactants including nonionic zwitterionic fluorinated and amino acid based surfactants gemini surfactants considers the synthesis phase behavior and rheology of gemini and related surfactants and clarifies the adsorption and surface tension behavior of gemini surfactants at air water oil water and solid water interfaces the book also details the physicochemical properties and microstructure of aqueous micellar solutions of gemini surfactants and describes mixed micellization between gemini surfactants and conventional surfactants

Surfactant Science and Technology

2020-08-04

a solid introduction to the field of surfactant science this new edition provides updated information about surfactant uses structures and preparation as well as seven new chapters expanding on technology applications offers a comprehensive introduction and reference of the science and technology of surface active materials elaborates more fully than prior editions aspects of surfactant crystal structure as well as their effects on applications adds more information on new classes and applications of natural surfactants in light of environmental consequences of surfactant use

Biobased Surfactants

2019-04-30

biobased surfactants synthesis properties and applications second edition covers biosurfactant synthesis and applications and demonstrates how to reduce manufacturing and purification costs impurities and by products fully updated this book covers surfactants in biomedical applications detergents personal care food pharmaceuticals cosmetics and nanotechnology it reflects on the latest developments in biobased surfactant science and provides case scenarios to guide readers in efficient and effective biobased surfactant application along with strategies for research into new applications this book is written from a biorefinery based perspective by an international team of experts and acts as a key text for researchers and practitioners involved in the synthesis utilization and development of biobased surfactants describes new and emerging biobased surfactants and their synthesis and development showcases an interdisciplinary approach to the topic featuring applications to chemistry biotechnology biomedicine and other areas presents the entire lifecycle of biobased surfactants in detail

Surfactants in Consumer Products

2012-12-06

in today's market custom formulated surfactants are offered for a wide range of applications the need for surfactants in detergents cleaning agents cosmetics toiletries is second only to an expanding demand in industrial applications but even within the non industrial areas the demands have undergone significant changes in recent years for example washing and cleaning temperatures have substantially decreased with

increased energy conservation attitudes and more stringent regulatory requirements in the area of ecology and toxicology are leading to new product profiles new manufacturing technologies and an increased utilization of natural raw materials also factor into this continuing evolution these changes and trends have been described in numerous publications however a summary and survey of these developments is currently missing the book presented here surfactants in consumer products is intended to close this gap the editor and authors dedicate this work to dr h c konrad henkel on the occasion of his 70th birthday dr henkel himself a scientist and industrialist contributed significantly to developments in the surfactant field in the nineteen fifties he initiated the change from soap based detergents to synthetic detergents within henkel at the same time dishwashing detergents utilizing various synthetic surfactants were also developed and became the basis for modern manual and mechanical dishwashing

Fluorinated Surfactants

1994

this volume in the surfactant science series provides coverage of fluorinated surfactants their basic science and related theories it highlights diverse aspects of fluorinated surfactants and systems including liquid vapour and liquid liquid interface solid liquid interface solutions of fluorinated surfactants and the structure of micelles and mesophases

An Introduction to Surfactants

2014-04-01

surfactants are surface active agents molecules that have a significant role in emulsions suspensions and foams they find widespread application in personal care cosmetics pharmaceuticals agrochemicals and the food industry the main objective of this graduate level textbook is to present an overview of the classification physical properties phase behavior their effects and applications of surfactants e g as emulsifiers foam stabilizer in nano and microemulsions and as wetting agents

Specialist Surfactants

2012-12-06

surfactants are vital components in biological systems are key ingredients in many formulated products and play an important role in many industrial processes the property which makes surfactants so useful is their ability to stabilize complex colloidal and interfacial systems it is not surprising therefore that many new surfactant materials are developed many of which have novel properties however because their potential is not fully appreciated they remain underutilized by industry the main purpose of this book is to illustrate the utility of a range of novel surfactants in particular those which have been found useful in specific areas and which seem to offer promise across a wider range of applications the contributors are drawn from industry and academic research and provide a comprehensive account of the preparation properties and applications of these specialist surfactants research chemists in industry and academia will find this book a concise and authoritative account of this important group of surfactants

Natural Surfactants

2021-07-15

this book focuses on the use of natural surfactants in enhanced oil recovery providing an overview of surfactants their types and different physical chemical properties used to analyse the efficiency of surfactants natural surfactants discuss the history of the surfactants their classification and the use of surfactants in petroleum industry special attention has been paid to natural surfactants and their advantages over synthetic surfactants including analysing their properties such as emulsification interfacial tension and wettability and how these can be used in eor this book offers an overview for researchers and graduate students in the fields of petroleum and chemical engineering as well as oil and gas industry professionals

Hydrophile - Lipophile Balance of Surfactants and Solid Particles

2000-10-18

this book considers the different concepts of hydrophile lipophile balance hlb of surfactants and solid particles and the main physicochemical properties of surfactant and solid interfaces which are used to define the hydrophile lipophile balance the book comprehensively analyses all interfacial and bulk properties of surfactants used for the determination of hlb such as interfacial tension distribution coefficient adsorption surface pressure surfactants solubility structure characteristics distribution between heteropolar phases micellar formation chromatographic characteristics phase separation in emulsions phase inversion temperature formation of three phase systems the central point of the book is the energetic interpretation of the balance i.e. the hydrophile lipophile ratio at the same time the hlb number systems of griffin and davies and other independent methods of the hydrophile lipophile balance definitions are discussed polarity indexes surfactant affinity difference etc the possibility of application of the different characteristics of the hydrophile lipophile balance as a criterion of phase inversion in emulsions and microemulsion systems water oil surfactant are considered for the first time the different methods of the hydrophile lipophile balance definition for solid

particles in compact and dispersed form are suggested by the author the use of hydrophile lipophile characteristics of solid particles as a criterion of phase inversion in emulsion stabilisation and for other applications is discussed

Surfactants for Enhanced Oil Recovery Applications

2020-01-29

this book provides a concise treatise on the use of surfactants in enhanced oil recovery eor including information on key types of surfactants and their respective applications in the wider petroleum industry the authors discuss carbon dioxide eor alkaline surfactant polymer flooding strategies and the use of surfactants as a means of reducing interfacial tension while also paying special attention to the challenges involved in using surfactants for enhanced oil recovery such as the difficult issue of surfactant adsorption on reservoir rock all chapters highlight and are based on the authors own laboratory scale case studies given its content the book offers a valuable asset for graduate students of petroleum and chemical engineering as well as researchers in the field of chemical enhanced oil recovery it will also be of interest to professionals involved in enhanced industrial oil recovery

Surfaces, Interfaces, and Colloids

1999-05-24

from the reviews of the first edition the book has admirably met its stated goal the whole gamut of surface and colloid science has been presented in a comprehensive manner without any undue oversimplification the

author should be congratulated for his clarity advanced materials now in its second edition this work remains the single most useful introduction available to the complex area of surface and colloids science industry expert drew myers walks readers through concepts theories and applications keeping the mathematics to a minimum and presenting real world case studies to illustrate key technological and biological processes he substantially reorganizes and updates the material to reflect the current state of knowledge in the field offering new chapters on absorption and biological systems in addition to the important areas of colloid stability emulsions and foams monolayer films surfactants and wetting this revision also boasts an improved index more than 200 new line drawings general and specific chapter bibliographies and end of chapter problems geared to scientists technologists and students dealing with colloidal and surface systems and their numerous industrial applications the book imparts an understanding of the fundamental aspects of surfaces interfaces and colloids which is essential for effective solutions in diverse areas of chemistry physics biology medicine engineering and material sciences

Surfactants: Chemistry, Interfacial Properties, Applications

2001-12-21

this publication provides comprehensive material on the chemical and physical attributes of surfactants and new models for the understanding of structure property relationships surfactants chemistry interfacial properties applications provides efficient instruments for the prognostication of principal physicochemical properties and the technologic applicability from the structure of a surfactant through the discussion of interrelations between the chemical structure physicochemical properties and the efficiency of technologic application also included are informative overviews on new experimental techniques and abundant reference material on manufacturers nomenclature product properties and experimental examples the publication is

accompanied by a cd rom which is needed for the application of the thermodynamic and kinetic models to experimental data

Surfactants and Detergents

2021

extensively revised and expanded this timely reference discusses the synthesis properties and potential applications of popular and emerging surfactant compounds and systems this reference reflects current research trends in green surfactants the production of surfactants using biotechnological methods and surfactants based on natural building blocks offering nearly 2000 valuable references the second edition contains five new chapters analyzing aspects of natural surfactants and examines surfactants produced by microorganisms surfactant types based on sugar as hydrophilic building block and surfactant classes based on fatty acids as hydrophobic building block

Novel Surfactants

1998-08-07

biosurfactants are surface active biomolecules produced by a wide variety of microorganisms they can be produced from renewable sources and possess high surface activity high specificity low toxicity tolerance to ph temperature and ionic strength biodegradability excellent emulsifying and demulsifying ability and antimicrobial activity biosurfactants have found applications in several industries including organic chemicals petrochemicals mining metallurgy mainly bioleaching agrochemicals fertilizers foods beverages cosmetics

pharmaceuticals and many others the main aim of this volume is to highlight concepts classifications production and applications of microbial surfactants in food and agriculture the book provides a comprehensive coverage of fermentation recovery genomics and metagenomics of biosurfactant production it is presented in an easy to understand manner and includes protocols figures and recent data on the industrial demand market and economics and the production of biosurfactants from novel substrates are particularly worthwhile additions the volume will be useful for students researchers teachers and entrepreneurs in the area of microbial biosurfactants and their applications in food and agriculture

Microbial Surfactants

2022-03-10

extensively revised and expanded this timely reference discusses the synthesis properties and potential applications of popular and emerging surfactant compounds and systems this reference reflects current research trends in green surfactants the production of surfactants using biotechnological methods and surfactants based on natural building blocks offering nearly 2000 valuable references the second edition contains five new chapters analyzing aspects of natural surfactants and examines surfactants produced by microorganisms surfactant types based on sugar as hydrophilic building block and surfactant classes based on fatty acids as hydrophobic building block

Novel Surfactants

2003-07-03

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 act

The Science of Defoaming

2016-04-19

this book gives the reader an introduction to the field of surfactants in solution as well as polymers in solution starting with an introduction to surfactants the book then discusses their environmental and health aspects chapter 3 looks at fundamental forces in surface and colloid chemistry chapter 4 covers self assembly and 5 phase diagrams chapter 6 reviews advanced self assembly while chapter 7 looks at complex behaviour chapters 8 to 10 cover polymer adsorption at solid surfaces polymers in solution and surface active polymers respectively chapters 11 and 12 discuss adsorption and surface and interfacial tension while chapters 13 16 deal with mixed surfactant systems chapter 17 18 and 19 address microemulsions colloidal stability and the rheology of polymer and surfactant solutions wetting and wetting agents hydrophobization and hydrophobizing agents solid dispersions surfactant assemblies foaming emulsions and emulsifiers and microemulsions for soil and oil removal complete the coverage in chapters 20 25

Surface Chemistry of Surfactants and Polymers

2014-12-31

a discussion of the synthesis problems theories and applications of fluorinated surfactants this second edition is updated with four new chapters on repellency and protection against soiling and staining and over 2900 references equations and drawings 800 more than the previous edition it lists alphabetically and explores numerous applications of fluorinated surfactants called a most useful introduction to these fascinating materials by the journal of dispersion science and technology and a coherent and stimulating handbook the most useful book in the fluorinated surfactants field to date recommended by the journal of the chemical society faraday transactions this book is a source of factual data methods of manufacture and chemical structures for the surfactant scientist and user

Fluorinated Surfactants and Repellents, Second Edition,

2001-02-09

biosurfactants are the surface active biomolecules produced by microorganisms biosurfactants have gained commercial significance due to their unique properties such as high surface activity high specificity low toxicity tolerance to pH temperature and ionic strength biodegradability excellent emulsifying and demulsifying ability antimicrobial activity ability to work under extreme conditions and relative ease of preparation biosurfactants are used in several industries including organic chemicals petroleum petrochemicals mining metallurgy mainly bioleaching agrochemicals fertilizers foods beverages cosmetics pharmaceuticals and many others the aim of this book is to highlight key aspects from basics to advanced concepts classifications production and applications in various fields such as agriculture health bioremediation industries pharmaceutical oil recovery environment and nanotechnology it also serves as an excellent and expansive literature on fermentation recovery genomics and metagenomics of biosurfactant production the book focuses on the biosurfactant production from bacteria the diversity of biosurfactant producing bacteria

and industrial need of biosurfactant

Microbial Surfactants

2021-11-29

in spite of the apparent simplicity of silica's composition and structure scientists are still investigating fundamental questions regarding the formation constitution and behavior of colloidal silica systems colloidal silica fundamentals and applications introduces new information on colloid science related to silica chemistry as well as theoretical and experimental aspects of significant areas of colloidal silica science and technology this resource is dedicated to helping researchers find new uses of silica and answers to practical problems as its industrial use continues to grow steadily in traditional and novel areas written by leading silica scientists around the world this book reflects developments in the field since silica scientist ralph k ilder published his authoritative book on silica chemistry in 1979 it discusses properties and methods of characterization synthesis and preparation of silica in terms of industrial applications following an analysis of the surface chemistry of various silicas the book explores methods for measuring particle size and useful characterization techniques for determining structure stability and reactivity the authors then focus on various studies analytical methods and current applications involving silica gels and powders silica coatings colloidal silica and sol gel technology colloidal silica fundamentals and applications features up to date material relating to fields as diverse as catalysis metallurgy electronics glass ceramics paper and pulp technology optics elastomers food health care and industrial chromatography it is ideal for scientists interested in silica chemistry and physics as well as those not familiar with the subject

Colloidal Silica

2005-12-19

surfactants are used throughout industry as components in a huge range of formulated products or as effect chemicals in the production or processing of other materials a detailed understanding of the basis of their activity is required by all those who use surfactants yet the new graduate or postgraduate chemist or chemical engineer will generally have little or no experience of how and why surfactants work chemistry technology of surfactants is aimed at new graduate or postgraduate level chemists and chemical engineers at the beginning their industrial careers and those in later life who become involved with surfactants for the first time the book is a straightforward and practical survey of the chemistry of surfactants and their uses providing a basic introduction to surfactant theory information on the various types of surfactant and some application details this will allow readers to build on to their scientific education the concepts and principles on which the successful use of surfactants across a wide range of industries is based

Chemistry and Technology of Surfactants

2008-04-15

microbially derived surfactants called biosurfactants provide a promising alternative to synthetic surfactants displaying better availability and being generally nontoxic and biodegradable biosurfactants also have the advantage of diverse chemical properties and the potential to be less expensive they demonstrate properties such as reducing surface tension stabilizing emulsions and promoting foaming with many promising research results a consolidated resource of biosurfactant knowledge is needed to build a framework for further

development of applications biosurfactants research trends and applications fills this need covering the latest research and development on relevant aspects of biological biochemical and physical processes and applications of biosurfactants this book reviews current knowledge and the latest advances strategies for improving production processes and the status of biosynthetic and genetic regulation mechanisms for microbial surfactants chapters present research findings on specific biosurfactants such as high surface activity rhamnolipids yeast derived sophorolipids lipopeptides and trehalose lipids that have potential for environmental industrial and medical uses the book also describes sources and characteristics of marine microbial biosurfactants biosurfactants made from food processing by products and biosurfactants used in the food industry and biosurfactants for green synthesis of nanoparticles the text presents applications of biosurfactants in environmental industries and examines interactions between metals and various classes of biosurfactants and related metal remediation technologies the final chapter reviews the state of the art of biosurfactants and their applications and proposes approaches to overcome any challenges

Biosurfactants

2014-02-10

this book explores the development of novel marine biosurfactants the book also covers the utilization of marine surfactants for biological and biomedical and environmental applications marine surfactants preparations and applications aims to examine every aspect of marine derived surfactants the first part of the book discusses the isolation of marine surfactants from various organisms include marine bacteria algae cyanobacteria and so on the editors also examine the cultivation of marine microorganisms and the harvesting of other natural biological resources from the sea the next part of the book discusses the application marine surfactants including oil spill removal in the sea bioremediation of polluted water and soil treatments for

breast cancer restoration of marine environments nanoparticles synthesis and development of different kinds of emulsifiers with contributions from world renowned experts in the field this book will be an essential resource in understanding and developing various marine derived surfactants this book is intended for researchers and marine biotechnologists as well as medical practitioners working on a vast range of industrial and medical applications using marine materials it would also be useful for students looking to understand the utilization of marine derived surfactants

Marine Surfactants

2022-12-20

surfactants in precision cleaning removal of contaminants at the micro and nanoscale is a single source of information on surfactants emulsions microemulsions and detergents for removal of surface contaminants at the micro and nanoscale the topics covered include cleaning mechanisms effect of surfactants types of stable dispersions emulsions microemulsions surfactants detergents etc cleaning technology and cleaning applications users will find this volume an excellent resource on the use of stable dispersions in precision cleaning single source of current information on surfactants emulsions microemulsions and detergents for precision cleaning applications includes a list of extensive reference sources discusses specific selection and properties of surfactants and their use in cleaning provides a guide for cleaning applications in different industry sectors

Surfactants in Precision Cleaning

2021-10-21

surfactant research explores the forces responsible for surfactant assembly and the critical industrial medical and personal applications including viscosity control microelectronics drug stabilization drug delivery cosmetics enhanced oil recovery and foods surfactant science and technology retrospects and prospects a festschrift in honor of dr kash mittal provides a broad perspective with chapters contributed by leaders in the fields of surfactant based physical organic and materials chemistries many of the authors participated in a special symposium in melbourne australia honoring kash mittal s 100th edited book at the 18th surfactants in solution sis meeting each chapter provides an overview of a specific research area with discussions on past present and future directions the book is divided into six parts part i reviews the evolution of theoretical models for surfactant self assembly and introduces a model for interpreting ion specific effects on aggregate properties part ii focuses on interactions of surfactant solutions with solid supports uses contact angles to understand hydrophobic hydrophilic changes in a lipid layer uses surface tension to understand molecular arrangements at interfaces reviews spreading phenomena discusses pattern formation on solid surfaces and applies tensiometry to probe flavor components of espresso part iii discusses novel dna based materials multifunctional poly amino acid s based graft polymers for drug delivery and polymeric surfactants for stabilizing suspensions and emulsions part iv introduces farm based biosurfactants from natural products and greener biosurfactants from bacteria part v explores lyotropic liquid crystals and their applications in triggered drug release microemulsion properties and controlled drug release the role of hydrotopes in formulations and in enhancing solubilization in liquid crystals the potential of ionic liquids to generate tunable and selective reaction media and provides an overview of stimuli responsive surfactants focusing on emulsions part vi reviews the design of emulsion properties for various commercial applications the role of surfactants in the oil and gas industries and surfactant mechanisms for soil removal via microemulsions and emulsification

Surfactant Science and Technology

2014-05-05

surfactants in biopharmaceutical development addresses the progress challenges and opportunities for surfactant research specific to pharmaceutical development providing a broad range of important surfactant related topics as they relate directly to the biopharmaceutical process chapters address fundamental topics like mechanisms of protein stabilization by surfactants the latest state of the art technology and methods to illustrate the practical application to biopharmaceutical development forward looking chapters on control strategies and novel surfactants with a special focus on current regulatory aspects of paramount importance for biopharmaceutical companies and regulators it has been widely recognized that surfactants provide protection to therapeutic proteins against interfacial stresses despite the fact that the very mechanism of protein stabilization by surfactants has not been completely understood surfactants are universally regarded as critical functional excipients by the industry and by regulators describes the current state of research on surfactants in the context of biopharmaceutical development drawing upon contributions from international experts across industry academia and regulators addresses the opportunities and challenges associated with surfactants in biologic drug development provides a defining resource for practitioners in the biopharmaceutical industry regulators and academics by summarizing the latest knowledge of surfactants in biopharmaceutical development in one comprehensive volume

Surfactants in Biopharmaceutical Development

2023-08-25

surface active agents surfactants are vital components in biological systems form key ingredients in consumer products and play an important role in many industrial processes for example cell membranes owe their structure to the aggregation of surfactants known as lipids which form a major component of the membrane other natural surfactants occur in the digestive system in the lungs and even in such substances as crude oil man made surfactants are used in a wide range of domestic and industrial products and processes in addition to detergents and personal care products surfactants have found uses in almost every branch of the chemical industry as well as in several other industries these include dyestuffs fibres mineral processing oil field chemicals paints pesticides pharmaceuticals and plastics surfactants are versatile materials which are manufactured in a huge variety of forms to suit all of these applications as a result of their importance the technical literature on all aspects of surfactant behaviour is now very extensive surprisingly however the treatment in textbooks has been somewhat fragmented often in the form of conference proceedings or edited multi authored works both lacking in continuity

Surfactant Aggregation

2012-12-06

surfactants were and still are our inconspicuous companions at macroscopic but more often at microscopic scale many technologies are only possible due to surfactant applications which are of constantly growing scientific and industrial interest for approximately 100 years 1 hence since its definition micro emulsion by schulman 2 optically isotropic surfactant formulations and their variations have become a significant part in today s society in nowadays most popular sector of nanomaterials surfactants are utilised for productions of such via template strategies 3 10 organic synthesis benefits from the immensely huge interfacial area of microemulsions resulting in bigger yields which were not possible before 11 21 closely related to organic

synthesis pharmaceutical industries enjoy the benefits of drug delivery via e.g. vesicles which play a major role during drug transport into the blood stream 22 27 simpler application of surfactants were reported 1984 where cationic surfactants were utilised as stabiliser for antibiotics 28 concerning healthier and conscious nutrition microemulsions are applied for reduction of the caloric value of food 29 39 also to contribute to environmental protection exhaust emissions can be reduced by introducing water and surfactants into fuels 40 42 surfactant systems or in most cases microemulsions are very adaptable and can therefore be utilised in their most different states this chapter gives an insightful introduction into the world of microemulsions

A Guide to Formulation and Application of Low-Surfactant Microemulsions in Cleaning-Processes

2014-12-17

this brief provides an up to date overview of smart surfactants and describes a broad spectrum of triggers that induce the formation of wormlike micelles or reversibly tune the morphology of surfactant aggregates from wormlike micelles to another state or vice versa combining the fields of chemistry physics polymer science and nanotechnology its primary focus is on the design formulation and processing of intelligent viscoelastic surfactant solutions covering the scientific principles governing responsiveness to one or more particular triggers down to the end use driven functions the first chapter explains why and how surfactants self assemble into viscoelastic wormlike micellar solutions reminiscent of polymer solutions while the following chapters show how the response to a given trigger translates into macroscopic rheological changes including temperature light pH CO₂ redox hydrocarbon etc the last chapter demonstrates the applications of these viscoelastic assemblies in oil and gas production drag reduction biomaterials cleaning processes electrorheological and photorheological fluids comments and perspectives are provided at the end to conclude

this brief this brief is aimed at chemists physicists chemical engineers and nano scientists who are involved in self assemblies and applications of surfactants as well as graduates in physical chemistry yujun feng ph d is a professor at the state key laboratory of polymer materials engineering polymer research institute of sichuan university chengdu sichuan province p r china zonglin chu ph d is a post doctoral fellow working at the physical chemistry institute university of zürich switzerland cécile a dreiss ph d is a senior lecturer at the institute of pharmaceutical science king s college london uk

Smart Wormlike Micelles

2015-01-23

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