

CONTENTS

PART III. THERMODYNAMIC AND KINETIC ASPECTS
OF MICELLIZATION

Micellization as a Nucleation Phenomenon with Variable
Surface Tension and Cut-off at Zero Surface Tension
T. S. Sørensen 709

Computation of the Micelle-Size-Distribution from
Experimental Measurements
A. Ben-Naim 731

Thermodynamics of Micelle Formation in Aqueous Media =
"Second Virial Coefficient"
K. S. Birdi, E. Stenby and D. K. Chattoraj 745

Thermodynamics of Micellization and Solubilization of
Pentanol in the System Water + Sodium N-Octanoate +
N-Pentanol at 25°C - Part 2. Solubilization of Pentanol
J.B. Rosenholm and P. Stenius 755

Dissolution and Micellization of Long-Chain Alkylsulfonic
Acids and Their Sodium Salts in Water
M. Saito, Y. Moroi and R. Matuura 771

The Effect of Cosolvents on the Formation of Micelles of
Cetyltrimethylammonium Bromide in Aqueous Solutions
L. G. Ionescu, L. S. Romanesco and F. Nome 789

The Sphere to Rod Transition of CPX and CTAX Micelles in
High Ionic Strength Aqueous Solutions: The Specificity of
Counterions
G. Porte and J. Appell 805

Salt-Induced Sphere-Rod Transition of Ionic Micelles
S. Ikeda 825

Quasielastic Light Scattering Studies of the Micelle to Vesicle Transition in Aqueous Solutions of Bile Salt and Lecithin P. Schurtenberger, N. A. Mazer, W. Känzig and R. Preisig	841
The Applicability of Micellar Models to the Activity Coefficients of Sodium Carboxylates in Aqueous Solution G. Douhéret and A. Viillard	857
Kinetic Applications of Bile Salt Amphiphiles C. J. O'Connor, R. G. Wallace and B. T. Ch'ng	875
Electrostatics of Micellar Systems J. Frahm and S. Diekmann	897

PART IV. SOLUBILIZATION

Solubilization Equilibria Studied by the FT-PGSE-NMR Multicomponent Self-Diffusion Technique P. Stilbs	917
Selective Solubilization in Aqueous Surfactant Solutions R. Nagarajan and E. Ruckenstein	923
Thermodynamics and Mechanisms of Solubilization of Alcohols in Aqueous Ionic Surfactant Systems H. Høiland, O. Kvammen, S. Backlund and K. Rundt	949
Solubilization of Phenothiazine and its N-Alkyl Derivatives into Anionic Surfactant Micelles Y. Moroi, K. Satō, H. Noma and R. Matuura	963
Cholesterol Solubilization and Supersaturation in Bile: Dependence on Total Lipid Concentration and Formation of Metastable Dispersions D. Lichtenberg, I. Tamir, R. Cohen and Y. Peled	981
Further Investigations on the Micellar Solubilization of Biopolymers in Apolar Solvents P. Meier, V. E. Imre, M. Fleschar and P.L. Luisi	999

PART V. MICELLAR CATALYSIS AND REACTIONS
IN MICELLES

- Micellar Effects on Reaction Rates and Equilibria
L. S. Romsted 1015
- Reversed Micellar Enzymology
A. V. Levashov, Yu.L. Khmel'nitsky, N. L. Klyachko and
K. Martinek 1069
- Comparison of Rate Enhancements in Micellar and Nonmicellar
Aggregates
C. A. Bunton 1093
- On the Validity of the Pseudo-Phase Model for Micellar
Catalysis
L. G. Ionescu and F. Nome 1107
- Analysis of the Effect of Micelles and Vesicles on the
Reactivity of Nucleophiles Derived from the Dissociation of
Weak Acids
H. Chaimovich, J. B.S. Bonilha, D. Zanette and I. M.
Cuccovia 1121
- Micelle-Mediated Luminescence and Chromatography
L. J. Cline Love, R. Weinberger and P. Yarmchuk 1139
- Micellar Effects on Kinetics and Equilibria of Electron
Transfer Reactions
E. Pelizzetti, E. Pramauro, D. Meisel and E.
Borgarello 1159
- Catalysis of Ester Hydrolysis by Functionalized Counterion
Surfactants
M. Gobbo, R. Fornasier and U. Tonellato 1169
- Specific Micellar Effects in the Temporal Behaviour of
Excited Benzophenone: Consequences upon the Polymerization
Kinetics
P. Jacques, D. J. Lougnot and J. P. Fouassier 1177
- Quantitative Treatment for Salt Effects and Equilibria
Shifts in Micellar Solutions
R. Gaboriaud, G. Charbit and F. Dorion 1191
- The Nickel(II)-PADA Reaction as a Solubilization Probe in
Anionic Micellar Solutions
J. R. Hicks and V. C. Reinsborough 1207

The Application of Surfactants in Spectrophotometric Determination of Metal Ions: The Interaction Between Cationic Surfactants and Some Organic Dyes L. Čermáková	1217
PART VI. ADSORPTION AND BINDING OF SURFACTANTS	
Study of the Hydrophobic and the Electrostatic Interactions in Microphases Concentrated in Surfactant via Adsorption at Charged Interfaces D. Schuhmann, P. Vanel, E. Tronel-Peyroz and H. Raous ...	1233
Thermodynamics of Binding Cationic and Anionic Surfactants to Binary and Ternary Mixtures of Proteins B. K. Sadhukhan and D. K. Chattoraj	1249
An Internal Reflection Infrared Spectroscopic Study of AOT Adsorption onto Solid Surfaces K. McKeigue and E. Gulari	1271
Relation between Adsorption on a Metal Surface and Monolayer Formation at the Air/Water Interface from Amphiphilic Solutions T. Arnebrant, T. Nylander, P. A. Cuypers, P.-O. Hegg and K. Larsson	1291
Quantitative Ellipsometry of Protein Adsorption at Solid-Liquid Interfaces P. A. Cuypers, J. W. Corsel, M. P. Janssen, J. M. M. Kop, H. C. Hemker and W. Th. Hermens	1301
Association of Surfactants in Dilute Aqueous Solutions: Effect on Their Surface Properties D. Exerowa and A. Nikolov	1313
Polydisperse Non-Ionic Surfactants: Their Solution Chemistry and Effect on the Wettability of Solid Surfaces G. G. Warr, P. Scales, F. Grieser, J. R. Aston, D. R. Furlong and T. W. Healy	1329
Conditions of Phase Separation, Both at the Interface and in Solution. The Adsorption Isotherm and the Consequence of Critical Phenomena on the Behaviour of the System M. Privat and R. Bennes	1339
Carotenoid Films at the Air/Water Interface E. Chifu and M. Tomoaia-Cotisel	1349

Comparison of Interfacial Active Properties of Glycolipids from Microorganisms S. Lang, A. Gilbon, C. Sylдатk and F. Wagner	1365
Study of the Interaction Between Surfactants and Polyacrylamide of Various Hydrolysis Degree J. Sabbadin, J. Le Moigne and J. François	1377
Studies on the Interaction of Sodium Saccharin with Alkyltrimethylammonium Bromides S. S. Davis, P. E. Bruce, P. Daniels and L. Feely	1391
Thermodynamic Studies on the Interaction Between Lysozyme and Sodium <i>n</i> -Dodecyl Sulphate in Aqueous Solutions M. N. Jones and P. Manley	1403
About the Contributors	1417
Index	xxiii

CONTENTS OF VOLUME 1

PART I: PHASE BEHAVIOR AND PHASE EQUILIBRIA IN SURFACTANT SOLUTIONS

Principles of Phase Equilibria in Surfactant - Water Systems B. Jönsson, P.-G. Nilsson, B. Lindman, L. Guldbbrand and H. Wennerström	3
On the Phase Behavior of Systems of the Type H ₂ O - Oil - Nonionic Surfactant - Electrolyte M. Kahlweit and E. Lessner	23
Phase Equilibria in and Lattice Models for Nonionic Surfactant-Water Mixtures J. C. Lang	35
Amphiphilic Aggregates in a Lyotropic Nematic Phase J. Charvolin, Y. Hendrikx and M. Rawiso	59
Liquid Crystalline Structures Occurring in Aqueous Systems of a Totally Fluorinated Fatty Acid and Some of its Salts K. Fontell	69
Water ² H and ¹⁷ O NMR in Dodecylammonium Chloride/D ₂ O Lyotropic Mesophases B. Robin-Lherbier, D. Canet, J. P. Marchal and J. Brondeau	79
The Interaction Between Water and Ethylene Oxide Groups in Oligo (Ethylene Glycol) Dodecyl Ethers as Studied by ² H NMR in Liquid Crystalline Phases T. Klason and U. Henriksson	93
Surfactant Alkyl Chain Mobility and Order in Micelles and Microemulsions T. Ahlnäs, O. Söderman, H. Walderhaug and B. Lindman	107
Thermodynamics of Partially Miscible Micelles and Liquid Crystals R. F. Kamrath and E. I. Franses	129

^{31}P and ^2H NMR Studies of Phase Equilibria in the Three Component System: Monoolein-Dioleoylphosphatidylcholine-Water	
H. Gutman, G. Arvidson, K. Fontell and G. Lindblom	143
Micelle Formation and Phase Equilibria of Surface Active Components of Wood	
P. Stenius, H. Palonen, G. Ström and L. Ödberg	153
Fluid Microstructures of Sodium 4-(1'-Heptylnonyl) Benzenesulfonate Mixtures	
W. G. Miller, F. D. Blum, H. T. Davis, E. I. Franses, E. W. Kaler, P. K. Kilpatrick, K. E. Nietering, J. E. Puig and L. E. Scriven	175
Phase Structures and Phase Diagrams of Some Surfactant Systems with Divalent Counterions. Effect of Ca^{2+} and Mg^{2+} Counterions on the Stability of Liquid Crystalline Phases	
A. Khan, K. Fontell and B. Lindman	193
A New Optically Isotropic Phase in the Dilute Region of the Sodium Octanoate - Decanol - Water System	
W. J. Benton and C. A. Miller	205
NMR and Polarized Emission Studies of Cubic Phases and Model Membranes	
P.-O. Eriksson, L. B.-Å. Johansson and G. Lindblom	219
The Use of Freeze-Fracture and Freeze-Etching Electron Microscopy for Phase Analysis and Structure Determination of Lipid Systems	
T. Gulik-Krzywicki, L. P. Aggerbeck and K. Larsson	237
The Structure of Plasma Lipoproteins: Evaluation by X-Ray and Neutron Small-Angle Scattering	
P. Laggner	259
PART II. STRUCTURE, DYNAMICS AND CHARACTERIZATION OF MICELLES	
The Packing of Amphiphile Chains in Micelles and Bilayers	
D. W. R. Gruen and E. H. B. de Lacey	279
Molecular Organization in Amphiphilic Aggregates	
K. A. Dill	307

The Nature of the Surfactant-Block Model of Micelle Structure P. Fromherz	321
Structure in Micellar Solutions: A Monte Carlo Study P. Linse and B. Jönsson	337
Multi-Method Characterization of Micelles F. M. Menger	347
Tracer Self-Diffusion Studies of Surfactant Association N. Kamenka, M. Puyal, B. Brun, G. Haouche and B. Lindman	359
An Introduction to Neutron Scattering on Surfactant Micelles in Water B. Cabane, R. Duplessix and T. Zemb	373
Light Scattering and Small-Angle Neutron Scattering Investigations of Double-Tailed Surfactants in Aqueous Solutions L. J. Magid, R. Triolo, E. Gulari and B. Bedwell	405
Viscoelastic Detergent Solutions H. Hoffmann, H. Rehage, W. Schorr and H. Thurn	425
The Effect of Intermicellar Interactions on Interpretations of Micellar Diffusivities by Dynamic Light Scattering D. F. Nicoli, R. B. Dorshow and C. A. Bunton	455
Laser-Light Scattering Study of Nonionic Micelles in Aqueous Solution V. Degiorgio and M. Corti	471
Light Scattering from Concentrated Solutions of Sodium Octanoate Micelles M. Drifford, T. Zemb, M. Hayoun and A. Jehanno	487
NMR and ESR Studies of Dibutylphosphate Micellar Aggregates S. Belaïd and C. Chachaty	501
Conformational Change of Surfactants Due to Association; Raman Scattering and Carbon-13 NMR Studies H. Okabayashi and K. Matsushita	517
An NMR Study of Paramagnetic Relaxation Induced in Octanoate Micelles by Divalent Ions T. Zemb and C. Chachaty	527

ESR Study of Spin Labels in Surfactant Micelles P. Baglioni, M. F. Ottaviani, G. Martini and E. Ferroni	541
Spin Label Study of Molecular Aggregates M. Schara and M. Nemeč	559
Micellar Structure and Water Penetration Studied by NMR and Optical Spectroscopy K. A. Zachariasse, B. Kozankiewicz and W. Kühnle	565
Solubilization and Water Penetration into Micelles and Other Organized Assemblies as Indicated by Photochemical Studies D. G. Whitten, J. B. S. Bonilha, K. S. Schanze and J. R. Winkle	585
Critique of Water Penetration Studies in Micelles using Extrinsic Probes K. N. Ganesh, P. Mitra and D. Balasubramanian	599
The Size of Sodium Dodecyl Sulfate Micelles with Various Additives: A Fluorescence Quenching Study M. Almgren and S. Swarup	613
Fluorescence Quenching Aggregation Numbers in a Non-Ionic Micelle Solution J.-E. Löfroth and M. Almgren	627
Fluorescence Quenching Equilibria Studies in Ionic Micelles in Aqueous Media K. S. Birdi, M. Meyle and E. Stenby	645
Fluorescence Quenching in Micellar Systems F. C. De Schryver, Y. Croonen, E. Geladé, M. Van der Auweraer, J. C. Dederen, E. Roelants, and N. Boens	663
FT-IR Studies of Aqueous Surfactants: The Temperature Induced Micelle Formation H. H. Mantsch, V. B. Kartha and D. G. Cameron	673
About the Contributors	691
Index	xxiii

CONTENTS OF VOLUME 3

PART VII. REVERSE MICELLES

Kinetic Consequences of the Self Association Model in Reversed Micelles C. J. O'Connor and T. D. Lomax	1435
Dynamics of Reversed Micelles Z. A. Schelly	1453
Reverse Structures in a p-Nonylphenolpolyethyleneglycol (9.6 Mole Ethylene Oxide) - Water System A. Derzhanski and A. Zheliaskova	1463
Reactivity Studies in A.O.T. Reverse Micelles M. P. Pileni, J. M. Furois and B. Hickel	1471
Preparation of Colloidal Iron Boride Particles in the CTAB-n-Hexanol-Water Reversed Micellar System N. Lufimpadio, J. B. Nagy and E. G. Derouane	1483

PART VIII. MICROEMULSIONS AND REACTIONS
IN MICROEMULSIONS

Microemulsions - An Overview Th. F. Tadros	1501
The Water-in-Oil Microemulsion Phenomenon: Its Understanding and Predictability from Basic Concepts H.-F. Eicke, R. Kubik, R. Hasse and I. Zschokke	1533
Phase Behavior of Microemulsions: The Origin of the Middle Phase, of Its Chaotic Structure and of the Low Interfacial Tension E. Ruckenstein	1551

- Influence of Cosurfactant Chemical Structure upon the Phase Diagram Features and Electrical Conductive Behavior of Winsor IV Type Media (So-Called Microemulsions)
M. Clause, J. Peyrelasse, C. Boned, J. Heil, L. Nicolas-Morgantini and A. Zradba 1583
- Fluorescence Probe Study of Oil in Water Microemulsions
R. Zana, J. Lang and P. Lianos 1627
- Characterization of Microemulsion Structure Using Multi-Component Self-Diffusion Data
B. Lindman and P. Stilbs 1651
- Photon Correlation Techniques in the Investigation of Water-in-Oil Microemulsions
J. D. Nicholson and J. H. R. Clarke 1663
- Water/Oil Microemulsion Systems Studied by Positron Annihilation Techniques
S. Millán, R. Reynoso, J. Serrano, R. López and L. A. Fucugauchi 1675
- Zeta Potential and Charge Density of Microemulsion Drops from Electrophoretic Laser Light Scattering - Some Preliminary Results
S. Qutubuddin, C. A. Miller, G. C. Berry, T. Fort, Jr. and A. Hussam 1693
- Low Temperature Dielectric Properties of W/O Microemulsions and of their Highly Viscous Mesophase
D. Senatra and C. M. C. Gambi 1709
- Mutual and Self Diffusion Coefficients of Microemulsions from Spontaneous and Forced Light Scattering Techniques
A. M. Cazabat, D. Chatenay, D. Langevin, J. Meunier and L. Leger 1729
- Percolation and Critical Points in Microemulsions
A. M. Cazabat, D. Chatenay, P. Guering, D. Langevin, J. Meunier, O. Sorba, J. Lang, R. Zana and M. Paillette.... 1737
- Structural and Dynamic Aspects of Microemulsions
P. D. I. Fletcher, A. M. Howe, N. M. Perrins, B. H. Robinson, C. Toprakcioglu and J. C. Dore 1745
- Structure of Nonionic Microemulsions by Small Angle Neutron Scattering
J. C. Ravey and M. Buzier 1759

Fluctuations and Stability of Microemulsions S. A. Safran	1781
Influence of Salinity on the Composition of Microemulsion Pseudophases: Correlation Between Salinity and Stability J. Biais, B. Clin, P. Lalanne and M. Barthe	1789
Phase Studies and Conductivity Measurements in Micro- emulsion-Forming Systems Containing a Nonionic Surfactant T. A. Bostock, M. P. McDonald and G. J. T. Tiddy	1805
Existence of Transparent Unstable Solutions in Three and Four Components Surfactant Systems T. Assih, P. Delord and F. C. Larché	1821
Theory of Phase Continuity and Drop Size in Microemulsions II. Improved Method for Determining Inversion Conditions J. Jeng and C. A. Miller	1829
Effect of the Molecular Structure of Components on Micellar Interactions in Microemulsions D. Roux, A. M. Bellocq and P. Bothorel	1843
The Importance of the Alcohol Chain Length and the Nature of the Hydrocarbon for the Properties of Ionic Microemulsion Systems E. Sjöblom and U. Henriksson	1867
Transport of Solubilized Substances by Microemulsion Droplets C. Tondre and A. Xenakis	1881
Light Scattering and Viscometric Investigations of Inverse Latices Formed by Polymerization of Acrylamide in Water- Swollen Micelles Y. S. Leong, S. J. Candau and F. Candau	1897
Application of the Ion-Exchange Model to O/W Microemulsions R. A. Mackay	1911
PART IX. GENERAL OVERVIEWS AND OTHER PAPERS	
HLB - A Survey P. Becher	1925
Polymerization of Organized Surfactant Assemblies J. H. Fendler	1947

Light Scattering by Liquid Surfaces D. Langevin, J. Meunier, D. Chatenay	1991
Surface Charge Density Evaluation in Model Membranes C. Stil, J. Caspers, J. Ferreira, E. Goormaghtigh and J-M. Ruyschaert	2015
Breakdown of the Poisson-Boltzmann Approximation in Poly- electrolyte Systems: A Monte Carlo Simulation Study B. Jönsson, P. Linse, T. Akesson and H. Wennerström	2023
Colloidal Stability of Liposomes L. Rydhag, K. Rosenquist, P. Stenius and L. Ödberg	2039
Fast Dynamic Phenomena in Vesicles of Phospholipids During Phase Transitions V. Eck and J. F. Holzwarth	2059
Dynamic Light Scattering Study of DMPC Vesicles Coagulation Around the Phase Transition of the Aliphatic Chains D. Sornette and N. Ostrowsky	2081
The Effect of Ginseng Saponins on Biochemical Reactions C. N. Joo	2093
Determination of Very Low Liquid-Liquid Interfacial Tensions from the Shapes of Axisymmetric Menisci Y. Rotenberg, S. Schürch, J. F. Boyce and A. W. Neumann	2113
Mechanism of Using Oxyethylated Anionic Surfactant to Increase Electrolyte Tolerance of Petroleum Sulfonate Y-C. Chiu	2121
Local Anesthetic-Membrane Interaction: A Spin Label Study of Phenomena that Depend on Anesthetic's Charge S. Schreier, W. A. Frezzatti, Jr., P. S. Araujo and I. M. Cuccovia	2145
About the Contributors	2157
Index	xxiii