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Nota di contenuto	Surface Chemistry of Surfactants and Polymers; Copyright; Contents; Preface; Acronyms; Chapter 1 Types of Surfactants, their Synthesis, and Applications; Definition of a Surfactant; Surfactants Adsorb at Interfaces; Surfactants Aggregate in Solution and at Interfaces; All Surfactants Contain at Least One Polar Head Group and at Least One Hydrophobic Tail; Surface Active Compounds are Plentiful in Nature; Surfactant Raw Materials may be Based on Petrochemicals or Oleochemicals; Surfactants are Classified by the Polar Head Group; Anionics; Nonionics; Cationics; Zwitterionics Hydrotropes and Solubilization Gemini Surfactants have Special Features; Synthesis; Gemini Surfactants are More Efficient; Cleavable Surfactants are Attractive from an Environmental Point of View; Background; Alkali-Labile Surfactants; Normal Ester Quats; Betaine Esters; Acid-Labile Surfactants; Acetals; Ortho Esters; Overview; Self-Aggregation of a Surfactant may Increase or Decrease the Hydrolysis Rate of Surfactants Containing a Labile Bond; Increased Hydrolysis

Rate-Micellar Catalysis; Decreased Hydrolysis Rate-Micellar Inhibition
Use of Polymerizable Surfactants is a Way to Immobilize the
Surfactant Mode of Surfactant Polymerization; Position of the
Polymerizable Group; Applications of Polymerizable Surfactants;
Emulsion Polymerization; Alkyd Emulsions; Surface Modification;
Surfactant Self-Assemblies; Special Surfactants Give Extreme Surface
Tension Reduction; Bibliography; Chapter 2 Environmental and Health
Aspects of Surfactants; Environmental Concern is a Strong Driving Force
for Surfactant Development; The Polar Head Group; Polyol Surfactants;
Amino Acid-Based Surfactants; The Hydrocarbon Tail; Biodegradability
The Rate of Biodegradation Depends on the Surfactant Structure Aquatic
Toxicity; Bioaccumulation; Other Regulatory Concerns; Dermatological
Aspects of Surfactants; REACH; Bibliography; Chapter 3 Two
Fundamental Forces in Surface and Colloid Chemistry; Counterion
Binding Affects Self-Assembly and Adsorption of Surfactants and
Polymers; Micelle Formation and Interaction of Micelles; Adsorption of
Surfactants at Nonpolar Surfaces; Polymer Systems; Colloidal Stability;
The Hydrophobic Effect is due to the High Energy Density of Water;
Ordering of the Water Leads to an Enthalpy-Entropy Compensation
The Solubility of Hydrocarbons Increases due to Water
Structuring Bibliography; Chapter 4 Surfactant Self-Assembly: General
Aspects and Spherical Micelles; Amphiphilic Molecules Self-Assemble;
Surfactants Start to Form Micelles at the CMC; CMC Depends on
Chemical Structure; Temperature and Cosolutes Affect CMC; The
Solubility of Surfactants may be Strongly Temperature Dependent;
Driving Forces of Micelle Formation and Thermodynamic Models;
Hydrophobic Interactions; Phase Separation Model; Mass Action Law
Model; The Association Process and Counterion Binding can be
Monitored by NMR Spectroscopy
Hydrophobic Compounds can be Solubilized in Micelles

Sommario/riassunto

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 an
