1. Record Nr. UNINA9910142516403321

Autore	Connors Kenneth A (Kenneth Antonio), <1932->
Titolo	Thermodynamics of pharmaceutical systems [[electronic resource]] : an introduction for students of pharmacy / / Kenneth A. Connors
Pubbl/distr/stampa	Hoboken, N.J., : Wiley-Interscience, c2002
ISBN	1-280-36679-6 9786610366798 0-470-30556-8 1-60119-515-X 0-471-23492-3
Descrizione fisica	1 online resource (358 p.)
Disciplina	615.19 615/.19
Soggetti	Pharmaceutical chemistry Thermodynamics Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 333-335) and index.
Nota di contenuto	THERMODYNAMICS OF PHARMACEUTICAL SYSTEMS; CONTENTS; PREFACE; I BASIC THERMODYNAMICS; 1 Energy and the First Law of Thermodynamics; 1.1. Fundamental Concepts; 1.2. The First Law of Thermodynamics; 1.3. The Enthalpy; 2 The Entropy Concept; 2.1. The Entropy Defined; 2.2. The Second Law of Thermodynamics; 2.3. Applications of the Entropy Concept; 3 The Free Energy; 3.1. Properties of the Free Energy; 3.2. The Chemical Potential; 4 Equilibrium; 4.1. Conditions for Equilibrium; 4.2. Physical Processes; 4.3. Chemical Equilibrium; II THERMODYNAMICS OF PHYSICAL PROCESSES 5 Introduction to Physical Processes5.1. Scope; 5.2. Concentration Scales; 5.3. Standard States; 6 Phase Transformations; 6.1. Pure Substances; 6.2. Multicomponent Systems; 7 Solutions of Nonelectrolytes; 7.1. Ideal Solutions; 7.2. Nonideal Solutions; 7.3. Partitioning between Liquid Phases; 8 Solutions of Electrolytes; 8.1. Coulombic Interaction and Ionic Dissociation; 8.2. Mean Ionic Activity and Activity Coefficient; 8.3. The Debye-Huckel Theory; 9 Colligative

Properties; 9.1. Boiling Point Elevation; 9.2. Freezing Point Depression; 9.3. Osmotic Pressure; 9.4. Isotonicity Calculations
10 Solubility10.1. Solubility as an Equilibrium Constant; 10.2. The Ideal Solubility; 10.3. Temperature Dependence of the Solubility; 10.4. Solubility of Slightly Soluble Salts; 10.5. Solubilities of Nonelectrolytes: Further Issues; 11 Surfaces and Interfaces; 11.1. Thermodynamic Properties; 11.2. Adsorption; III THERMODYNAMICS OF CHEMICAL PROCESSES; 12 Acid-Base Equilibria; 12.1. Acid-Base Theory; 12.2. pH Dependence of Acid-Base Equilibria; 12.3. Calculation of Solution pH; 12.4. Acid-Base Titrations; 12.5. Aqueous Solubility of Weak Acids and Bases; 12.6. Nonaqueous Acid-Base Behavior
12.7. Acid-Base Structure and Strength13 Electrical Work; 13.1. Introduction; 13.2. Oxidation-Reduction Reactions; 13.3. Electrochemical Cells; 13.4. pH Measurement; 13.5. Ion-Selective Membrane Electrodes; 14 Noncovalent Binding Equilibria; 14.1. Introduction; 14.2. The Noncovalent Interactions; 14.3. Binding Models; 14.4. Measurement of Binding Constants; APPENDIXES; A Physical Constants; B Review of Mathematics; B.1. Introduction; B.2. Logarithms and Exponents; B.3. Algebraic and Graphical Analysis; B.4. Dealing with Change; B.5. Statistical Treatment of Data; B.6. Dimensions and Units ANSWERS TO PROBLEMSBIBLIOGRAPHY; INDEX

Sommario/riassunto

Studies of thermodynamics often fail to demonstrate how the mathematical intricacies of the subject relate to practical laboratory applications. Thermodynamics of Pharmaceutical Systems makes these connections clear, emphasizing specific applications to pharmaceutical systems in a study created specifically for contemporary curriculums at colleges of pharmacy. Students investigating drug discovery, drug delivery, and drug action will benefit from Kenneth Connors's authoritative treatment of the fundamentals of thermodynamics as well as his attention to drug molecules and experimental conside