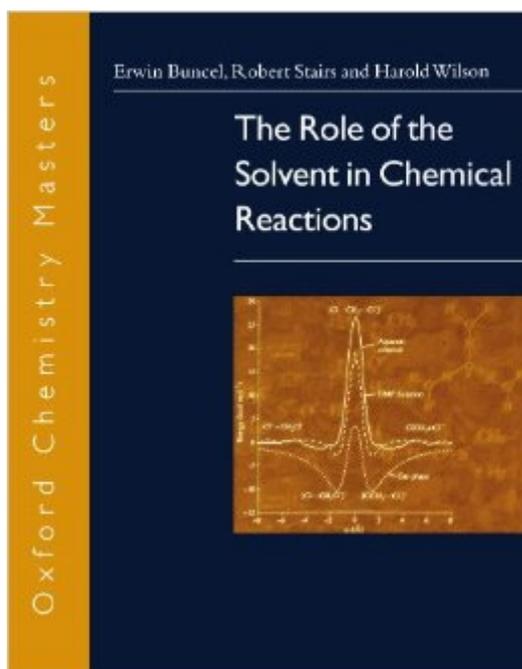


The book was found

The Role Of The Solvent In Chemical Reactions (Oxford Chemistry Masters)



Synopsis

The role of the solvent in chemical reactions is one of immediate and daily concern to the practising chemist. Whether in the laboratory, or in industry, most reactions are carried out in the liquid phase. In the majority of these, one or two reacting components, or reagents, are dissolved in a suitable medium and the reaction is allowed to take place. Given the importance of solvent, the need for an in-depth understanding of this topic is obvious. However, many inorganic and organic chemistry texts only make passing references to solvents, or worse still, fail to mention that a given reaction takes place in a particular solvent at all. This book successfully addresses the gap in our understanding of solvent chemistry, and brings the role of the solvent rightly to the fore. The book begins with a summary of essential thermodynamic and kinetic facts, emphasizing aspects of these fields, where relevant, to reactions in solution. Chapter 2 introduces the reader to the role of the solvent purely as a medium, touching on early theories based on electrostatic considerations (Born and Kirkwood-Onsager) and the solubility parameter (Hildebrand). Chapter 3 discusses the role of solvent as an active participant, chiefly through hydrogen bonding, Brønsted-Lowry and Lewis acid-base interactions, including hard and soft acids and bases. The ability of solvents to serve as media for oxidation and reduction is also touched upon. There then follows a chapter on chemometrics; the application of statistical methods to chemical phenomena and spectra, chiefly linear free energy correlations and principal component analysis. A novel method for the presentation of data is also described. In chapter 5, methods of theoretical calculation are discussed. These include quantum-mechanical ab-initio and semiempirical methods, integral-equation theories, and methods based on statistical mechanics (Monte Carlo and molecular dynamics). Examples to illustrate these methods are detailed in the chapter. Chapters 6 and 7 look at a selection of particular classes of solvents including aprotic-dipolar, acidic, basic, room-temperature ionic, and chiral. The suitability of examples from each class of solvent for particular purposes is also discussed. The final chapter presents some concluding observations. Throughout the book, the authors use a semiquantitative and thermodynamically based approach, deliberately avoiding unnecessary detail or rigour, so that the discussions are accessible to both senior undergraduates and postgraduates. The text is also interspersed with helpful examples taken from both inorganic and organic chemistry.

Book Information

Series: Oxford Chemistry Masters (Book 6)

Paperback: 176 pages

Publisher: Oxford University Press; 1 edition (November 6, 2003)

Language: English

ISBN-10: 0198511000

ISBN-13: 978-0198511007

Product Dimensions: 9.5 x 0.5 x 7.3 inches

Shipping Weight: 14.9 ounces (View shipping rates and policies)

Average Customer Review: 4.0 out of 5 stars [See all reviews](#) (1 customer review)

Best Sellers Rank: #6,802,403 in Books (See Top 100 in Books) #89 in [Books > Science & Math > Chemistry > Organic > Reactions](#) #3039 in [Books > Science & Math > Chemistry > Analytic](#) #6456 in [Books > Science & Math > Chemistry > Physical & Theoretical](#)

Customer Reviews

Bought this as a reference and study book. Looks like it will be very helpful.

[Download to continue reading...](#)

The Role of the Solvent in Chemical Reactions (Oxford Chemistry Masters) Solvent Effects in Chemistry Concise Organic Chemistry: Aromatic and Carbonyl Reactions, Oxidation-Reduction Reactions, Biomolecules, Natural Product and Heterocyclic Compounds Environmental Investigation and Remediation: 1,4-Dioxane and other Solvent Stabilizers Dynamic Spin Chemistry: Magnetic Controls and Spin Dynamics of Chemical Reactions Programmes in Organic Chemistry: Reactions of Carbonyl Compounds v. 5 (Chemical Science Texts) The Mechanisms of Reactions at Transition Metal Sites (Oxford Chemistry Primers) The Principles of Chemical Equilibrium: With Applications in Chemistry and Chemical Engineering The Chemistry of Heterocyclic Compounds, Oxazoles: Synthesis, Reactions, and Spectroscopy, Part B (Chemistry of Heterocyclic Compounds: A Series Of Monographs) (Volume 60) Organic Reactions in Liquid Ammonia, Volume 1, Part 2 of Chemistry in Anhydrous Liquid Ammonia (Chemistry in Nonaqueous Ionizing Solvents series) Advanced organic chemistry: Reactions, mechanisms and structure (McGraw;Hill series in advanced chemistry) Ace Organic Chemistry I: The EASY Guide to Ace Organic Chemistry I: (Organic Chemistry Study Guide, Organic Chemistry Review, Concepts, Reaction Mechanisms and Summaries) Ace General Chemistry I and II (The EASY Guide to Ace General Chemistry I and II): General Chemistry Study Guide, General Chemistry Review Ace General Chemistry I: The EASY Guide to Ace General Chemistry I: (General Chemistry Study Guide, General Chemistry Review) Chemical Bonding (Oxford Chemistry Primers) Turbulent Mixing and Chemical Reactions Dynamics of Molecules and Chemical Reactions Catalysis of Organic Reactions (Chemical Industries)

Molecular Orbitals and Organic Chemical Reactions: Reference Edition Analysis and Purification
Methods in Combinatorial Chemistry (Chemical Analysis: A Series of Monographs on Analytical
Chemistry and Its Applications)

[Dmca](#)