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Nota di contenuto	Chemistry In Alternative Reaction Media; CONTENTS; Preface; Abbreviations and Acronyms; 1 Chemistry in Alternative Reaction Media; 1.1 Economic and Political Considerations; 1.2 Why Do Things Dissolve?; 1.3 Solvent Properties and Solvent Classification; 1.3.1 Density; 1.3.2 Mass Transport; 1.3.3 Boiling Point, Melting Point and Volatility; 1.3.4 Solvents as Heat-Transfer Media; 1.3.5 Cohesive Pressure, Internal Pressure, and Solubility Parameter; 1.4 Solvent Polarity; 1.4.1 Dipole Moment and Dispersive Forces; 1.4.2 Dielectric Constant; 1.4.3 Electron Pair Donor and Acceptor Numbers 1.4.4 Empirical Polarity Scales1.4.5 E(N)(T) and E(T)(30) Parameters;

1.4.6 Kamlet-Taft Parameters; 1.4.7 Hydrogen Bond Donor (HBD) and Hydrogen Bond Acceptor (HBA) Solvents; 1.5 The Effect of Solvent Polarity on Chemical Systems; 1.5.1 The Effect of Solvent Polarity on Chemical Reactions; 1.5.2 The Effect of Solvent Polarity on Equilibria; 1.6 What is Required from Alternative Solvent Strategies?; References; 2 Multiphasic Solvent Systems; 2.1 An Introduction to Multiphasic Chemistry; 2.1.1 The Traditional Biphasic Approach; 2.1.2 Temperature Dependent Solvent Systems
2.1.3 Single- to Two-Phase Systems2.1.4 Multiphasic Systems; 2.2 Solvent Combinations; 2.2.1 Water; 2.2.2 Fluorous Solvents; 2.2.3 Ionic Liquids; 2.2.4 Supercritical Fluids and Other Solvent Combinations; 2.3 Benefits and Problems Associated with Multiphasic Systems; 2.3.1 Partially Miscible Liquids; 2.4 Kinetics of Homogeneous Reactions; 2.4.1 Rate is Independent of Stoichiometry; 2.4.2 Rate is Determined by the Probability of Reactants Meeting; 2.4.3 Rate is Measured by the Concentration of the Reagents; 2.4.4 Catalysed Systems; 2.5 Kinetics of Biphasic Reactions
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3.4 Probing the Effect of Perfluoroalkylation on Ligand Properties3.5 Partition Coefficients; 3.6 Liquid-Liquid Extractions; 3.7 Solid Separations; 3.8 Conclusions; References; 4 Ionic Liquids; 4.1 Introduction; 4.1.1 The Cations and Anions; 4.1.2 Synthesis of Ionic Liquids; 4.2 Physical Properties of Ionic Liquids; 4.3 Benefits and Problems Associated with Using Ionic Liquids in Synthesis; 4.4 Catalyst Design; 4.5 Conclusions; References; 5 Reactions in Water; 5.1 The Structure and Properties of Water; 5.1.1 The Structure of Water; 5.1.2 Near-Critical Water; 5.1.3 The Hydrophobic Effect
5.1.4 The Salt Effect

Sommario/riassunto

At a time when environmental concerns are increasing, it's important that chemical processes are as environmentally friendly as possible. This book outlines various methods for producing inorganic and organic solvents without the use of traditional solvents that can have detrimental effects on the environment. This is the first book to give extensive and exclusive coverage to the topicIncludes important environmental issues This book will appeal to anyone with an interest in organic synthesis; reaction chemistry; catalysis; and process development, and to undergraduate and g