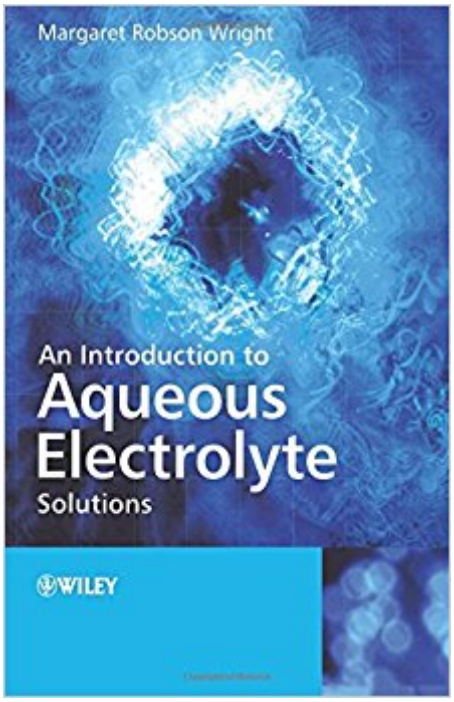
An Introduction To Aqueous Electrolyte Solutions



Synopsis

An Introduction to Aqueous Electrolyte Solutions is a comprehensive coverage of solution equilibria and properties of aqueous ionic solutions. Acid/base equilibria, ion pairing, complex formation, solubilities, reversible emfÃ¢â ¬â„¢s and experimental conductance studies are all illustrated by many worked examples. Theories of non-ideality leading to expressions for activity coefficients, conductance theories and investigations of solvation are described; great care being taken to provide detailed verbal clarification of the key concepts of these theories. The theoretical development focuses on the physical aspects, with the mathematical development being fully explained. An overview of the thermodynamic background is given. Each chapter includes intended learning outcomes and worked problems and examples to encourage student understanding of this multidisciplinary subject. An invaluable text for students taking courses in chemistry and chemical engineering. This book will also be useful for biology, biochemistry and biophysics students who may be required to study electrochemistry as part of their course.Ã Â A comprehensive introduction to the behaviour and properties of aqueous ionic solutions, including clear explanation and development of key concepts and theories Clear, student friendly style clarifying complex aspects which students find difficult Key developments in concepts and theory explained in a descriptive manner to encourage student understanding Includes worked problems and examples throughout

Book Information

Paperback: 602 pages

Publisher: Wiley; 1 edition (June 5, 2007)

Language: English

ISBN-10: 0470842946

ISBN-13: 978-0470842942

Product Dimensions: 6.6 x 1.5 x 9.6 inches

Shipping Weight: 2.4 pounds (View shipping rates and policies)

Average Customer Review: 3.3 out of 5 stars 6 customer reviews

Best Sellers Rank: #2,779,254 in Books (See Top 100 in Books) #99 inÃ Â Books > Science & Math > Chemistry > Physical & Theoretical > Electrochemistry #122 inÃ Â Books > Science & Math > Chemistry > Electrochemistry #2358 inÃ Â Books > Medical Books > Medicine > Internal Medicine > Pathology > Clinical Chemistry

Customer Reviews

"Ã¢â ¬Â¦will serve as a resource for chemistry and chemical engineering studentsÃ¢â ¬Â¦highly recommended." (CHOICE, December 2007)

An Introduction to Aqueous Electrolyte Solutions is a comprehensive coverage of the subject including the development of key concepts and theory that focus on the physical rather than the mathematical aspects. Important links are made between the study of electrolyte solutions and other branches of chemistry, biology, and biochemistry, making it a useful cross-reference tool for students studying this important area of electrochemistry. Carefully developed throughout, each chapter includes intended learning outcomes and worked problems and examples to encourage student understanding of this multidisciplinary subject. a comprehensive introduction to aqueous electrolyte solutions including the development of key concepts and theories emphasises the connection between observable macroscopic experimental properties and interpretations made at the molecular level key developments in concepts and theory explained in a descriptive manner to encourage student understanding includes worked problems and examples throughout An invaluable text for students taking courses in chemistry and chemical engineering, this book will also be useful for biology, biochemistry and biophysics students required to study electrochemistry.
--This text refers to the Hardcover edition.

I would like to recommend this book to every chemistry student who shows interest in Analytical and Physical Chemistry. It contains lots of valuble and solved examples needed for better problem understanding.

It is not as good as I expected. It looks like not useful to graduate students. Suggest buy other books.

It is a rare find in that it contains good theoretical foundation for electrochemistry which is not found elsewhere, especially regarding non-dc conductance (Debye-Falkenhagen).

muy buen libro, excelenrte para la carrera de mi primo le va a servir hasta despues que se gradue... muy responsablse...

This is a rather unusual ÃƒÂ¢Ã â ¬Ã Å“scientificÃƒÂ¢Ã â ¬Ã Â• book: in all of its more than 600 pages it has not a single reference to the original literature. This is amazing for a topic that is more

than a century old, and apparently merits such a fat book. So donÃƒÂ¢Ã â ¬Ã â„¢t look up in the index the names of influential contributors to this topic or of those who wrote comprehensive books on the state of the art at that time, such as those of Lewis & Randall, Harned & Owen, Robinson & Stokes, or Bates - they are not mentioned, only the earlier Stokes from StokesÃƒÂ¢Ã â ¬Ã â„¢ law. Instead, the reader is offered a set of opinions, but no tools to verify or even pursue them. If critical thinking is your idea of science, donÃƒÂ¢Ã â ¬Ã â„¢t touch this book.Important concepts are confused. One would expect pH to be an important topic since the entire chapter 6 (pp. 139-176) is devoted to ÃƒÂ¢Ã â ¬Ã Å“Neutralisation and pH Titration CurvesÃƒÂ¢Ã â ¬Ã Â•, but the index yields only three entries for ÃƒÂ¢Ã â ¬Ã Å“pHÃƒÂ¢Ã â ¬Ã Â•: pp. 46, 292, and 320. On page 46 we are informed of ÃƒÂ¢Ã â ¬Ã Å“the common habit of expressing concentrations of H3O+ as pH values, where pH = -log10 [H3O+]ÃƒÂ¢Ã â ¬Ã Â•. (Sorry, subscripts and superscripts don’t show here.) The entire chapter 6 then treats pH as -log10 [H3O+]. On page 292 we learn that the glass electrode ÃƒÂ¢Ã â ¬Ã Å“is made of special glass which is permeable to, and reversible to H3O+(aq).ÃƒÂ¢Ã â ¬Ã Â• (IÃƒÂ¢Ã â ¬Ã â„¢d be interested in finding out who makes that special, H3O+-permeable glass, and place an order before itÃƒÂ¢Ã â ¬Ã â„¢s sold-out!)But past half-way into the book, on page 320, we read that the rigorous definition of pH is instead the negative ten-based logarithm of the activity of H3O+, and that ÃƒÂ¢Ã â ¬Ã Å“Highly accurate measurements of the emf of appropriate cells can lead to a highly accurate determination of the pH of one of the electrode compartments.ÃƒÂ¢Ã â ¬Ã Â• WouldnÃƒÂ¢Ã â ¬Ã â„¢t this invalidate all of chapter 6?Now which is it, the negative ten-based log of concentration or of activity? On page 16 we had been informed that ÃƒÂ¢Ã â ¬Ã Å“the activity and activity coefficient of the individual ions cannot be measured experimentally.ÃƒÂ¢Ã â ¬Ã Â• Even IUPAC acknowledges that single ion activities are immeasurable. Yet, emf measurements can yield a ÃƒÂ¢Ã â ¬Ã Å“highly accurate determinationÃƒÂ¢Ã â ¬Ã Â• of the negative ten-based logarithm of this immeasurable quantity? Go figure.On page 154 we see a simulated titration curve of phosphoric acid with a quite useable third titration step - without specifying the rather special conditions under which this can indeed be observed, if you know what youÃƒÂ¢Ã â ¬Ã â„¢re doing. On page 168 the reader is warned that curve fitting procedures of titration curves can be ÃƒÂ¢Ã â ¬Ã Å“associated with the possibility that more than one best fit is possibleÃƒÂ¢Ã â ¬Ã Â•, without giving any specifics, yet even on a simple spreadsheet that should not happen, unless the experimental data are noisy enough to obscure the signal. There is only one ÃƒÂ¢Ã â ¬Ã Å“bestÃƒÂ¢Ã â ¬Ã Â• fit if the model used to fit to the data is well-defined. After all, titration curves (of pH vs. volume of titrant added) are strictly monotonic.And so it goes: a book full of undigested (and often inaccurate) information, presented in

an ÃƒÂ¢Ã â ¬Ã Ëœauthoritative ÃƒÂ¢Ã â ¬Ã â„¢ way that prevents the reader from checking it. If you want an antidote to critical thinking, buy this book - otherwise, save your aggravation, time, and money.N. O. Way

An Introduction to Aqueous Electrolyte Solutions is readable and thorough. The over 500 pages are packed with quite a bit of content -- the text definitely isn't an "aqueous solutions lite"-type text. Wright is careful to define terms and point out where assumptions are made. Introductory material isn't neglected and Wright seems to generally exercise care in building on concepts in a systematic manner that is especially likely to aid students or others with only a general chemistry background. The text is well-written and clear, walking through equation derivations in a step-by-step manner that should be accessible to students down to the undergraduate level. The inclusion of 'worked problems' also is a feature which makes the text more useful for use in the classroom setting for courses with substantial physical chemistry or biochemistry content. All good stuff for a course text or as a reference text in a library.

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