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Introduction To Physical Polymer Science, 3rd Edition



Synopsis

A revised edition of a classic text Polymers are macromolecules built up by linking large numbers of smaller molecules. Due to their diverse physical properties, polymers have become central to a number of important industries, including plastics, rubber, adhesives, fiber, and paint industries. Introduction to Physical Polymer Science, Third Edition is the definitive reference for polymer researchers. Emphasizing interrelationships between molecular structure and the morphology and mechanical behavior of polymers, the Third Edition incorporates new findings in processing and characterizing polymers. Many new worked examples and study problems have been added. The new material includes: New chapters devoted to polymer surfaces and polymer blends Discussions on solid-state nuclear magnetic resonance methods, self-assembled polymers, scaling law basics, polymer processing, hyperbranched dendrimers, and the kinetics of polymerization Current research interests, such as polyolefins, thermoset plastics, pyroelectric and piezoelectric polymers, supercritical fluids, biomedical applications, film formation, and natural polymers Introduction to Physical Polymer Science, Third Edition continues to be the ideal resource for students and professional chemists, chemical engineers, materials scientists, and polymer scientists.

Book Information

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Customer Reviews

"This book should be available to students in every school where chemistry or chemical engineering is taught and will undoubtedly be widely adopted at the graduate level...important addition to the library of anyone dealing with polymeric materials." (Journal of Chemical Education, Vol. 78, No. 11,

November 2001)

Updated and revised, it focuses on the role of molecular conformation and configuration in determining the physical behavior of polymers. New features include the amorphous and crystalline states of polymers; macromolecular hypothesis and historical development of photophysics and fluorescence; thermodynamics of blending polymers and polymer/polymer phase diagrams; a discussion of rheology plus gelatinous materials; and a variety of contemporary topics emphasizing surface, interfacial and electrical behavior of polymers, nonlinear optics and high temperature substances. Each chapter includes several classroom demonstrations and problem sets. --This text refers to an out of print or unavailable edition of this title.

I read about 90% of this book for my course in physical polymer science. I didn't read the last couple of chapters. This book was a good introduction to the subject. I learned alot about physical polymer science simply from reading this text.

I love science and this book helps feed my need for more advanced info

This book is poorly written, lacking in information, and what information it does contain is roughly edited; there are errors throughout. I bought this book strictly for a class and used it almost only for the questions at the end of each chapter.

Sperling's book stands out as the most useful polymer science text, compiling essential elements of varied physical properties and behaviour. The third edition has up to date material on all aspects of polymer physics including chapters on polymer surfaces and interfaces as well as on multicomponent polymer systems and liquid crystalline polymers. In my opinion, as a beginners guide, the book is definitely outscores over all other texts in market including Billmeyer, Painter Coleman, Rodriquez, etc. The book also contains a good description of various polymer characterization techniques. The material covered is adequate to provide basic information about each field in polymer physics, and the textbook has enough material to be useful for two or three courses. The author presents a lot of tables in the book, that succintly summarize important points related to that topic. Coupled with Strobl's book, which has slightly advanced description of polymer physics, and Doi's Introduction to polymer physics, which has mathematically intensive description of statistical mechanics of polymers, you have three texts to teach you essentially everything there

is to know in Polymer Physics!! (Perhaps you can add a text for Polymer Rheology, say by Larson!)

Like most textbooks, its verbose and hard to read at times. However, if one were to study polymers for more than just a course, it makes a handy reference tool unlike any other I or my friends have come across. Having this book for other courses would have been worth paying full price (but you don't have to) and I only wish I had come across it earlier.

This book introduced me to physical polymer science. I have a strong interest in this field. The book is very informative but not easy to read. However, it is very helpful that key points in the chapters are depicted quite nicely by diagrams and graphs.

I don't and won't read this book unless we are not going to take an exam on this field. (Basically because our professor recommended that the exam we are taking is based on this book.) But only one chapter from it. I haven't read other chapters but only chapter 9. And I am so disappointed! The mathematical deriving process are rough, and things like they are coming from nowhere. Sometimes the author made mistakes even when he was doing derivatives. Paradox are everywhere. The examples given uses the equation which lost a $1/2$ factor from the formula given previously. And I have no idea which one is right or wrong. I think Prof Sperling is too busy to check the typos? I have just read 15 pages and the typos are at least 20 of them. I am so disappointed that this book is going to be a textbook for college students. I am afraid the students will hate this field after they used this as the textbook! I just cannot imagine how he can be a professor in Lehigh Univ and publish papers every year. Looking at the book he composed, is a nightmare. Hope he could be retired soon so he can save some Ph.D's academic career.

Like any other text. Too pricy if you ask me.

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