used particularly well for tabulating data concerned with the use of glycosyltransferase enzymes for pectin biosynthesis in Chapter 3. Some chapters also benefit from providing some tips for practical procedures. For example, handling advice is given for preparing aqueous solutions of pectin, mixing pectin with other ingredients, making gels and avoiding degradation when storing pectin within Chapter 8 (titled Commercial pectin preparations). The book closes with an excellent, detailed index. As a whole the book is extremely informative and it is enjoyable to read. I would certainly recommend it to researchers within the field of pectin research.

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Physical Chemistry of Foods
Pieter Walstra; Marcel Dekker, 2003, XIII + 807 pages, ISBN 0-8247-9355-2. f95.00.

Published as part of an expanding series dedicated to Food Science and Technology, this book aims to provide a comprehensive textbook for the teaching of food physical chemistry at undergraduate and/or graduate level. The book has the secondary aim of providing a reference source for food researchers. The book is organised into 17 chapters that deal with four broad areas of physical chemistry applied to foods, namely molecules, mesoscopic physics, phase transitions and soft solids. Ten appendices are also included that give handy references for details such as conversion factors, SI units and error functions. The introductory chapter clearly lays out the author's definition of physical chemistry and how it impacts on food scientists and technologists. He outlines an excellent argument to justify the book and gives a useful summary of what is and is not covered within. The approach is not to attempt an explanation of the whole of physical chemistry from fundamentals upwards, but instead, selectively, to cover those aspects that relate to foods.

The seven chapters that follow the introduction deal with physical chemistry on the molecular scale, including chapters that are concerned with thermodynamics, interaction forces, kinetics and transport phenomena. Two chapters are concerned with polymers and proteins, respectively, with the polymer chapter concentrating on food polysaccharides and starch. Another chapter discusses the role of water and its interactions with food components in determining food properties.

The next five chapters move up to the mesoscopic scale with a preliminary chapter on dispersed systems that discusses issues of structure, scale and size distribution. This is followed by chapters that describe the basic theories concerning surface phenomena and colloidal interactions. These chapters are the foundation for more applied treatments of emulsion and foam formation, and the implications of instabilities in these colloidal systems that can lead to changes in dispersity.

Phase transitions are the theme of chapters 14–16, which initially explore the initiation of phase transitions through nucleation phenomena. Crystallisation is discussed in some detail, including specific accounts of water, sugar and fat crystallisation. Glass transitions are also included, along with a consideration of the various effects that freezing can have upon aqueous systems. The final chapter on soft solids introduces rheology and fracture mechanics, as well as applying the theories discussed earlier in the book to the explanation of food (treated as soft solids) properties.

Viewed as a whole, this book offers the reader a detailed and comprehensive treatment of the physical chemistry of foods. The book is not simply a rehash of physical chemistry principles with a few isolated examples related to food. Rather each chapter treats concepts as they directly relate to food and tackles, head-on, the complexity and non-ideal behaviour encountered in food systems. This is the unique feature of this book, i.e. its specific detail relating to the behaviour of food systems, which addresses the frustrating (for food scientists) tendency of most general physical chemistry texts to confine themselves to simple or ideal systems.

Physical Chemistry of Foods achieves its aims well. It is well structured, comprehensive and complete. For students, each chapter features questions and worked examples to test understanding, and is concluded with a summary of the main points. Speaking as a research scientist, I have already found this book an invaluable reference source and have confidence that it will become well thumbed over for years to come. *Physical Chemistry of Foods* is highly recommended as a textbook to support courses in food physical chemistry for advanced undergraduate and graduate students of food science and technology. Indeed, it may be of interest to chemistry lecturers looking to illustrate the real applications of physical chemistry to their students. It is further recommended as a reference book for researchers working in the area of food science.

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