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# Confectionery And Chocolate Engineering Principles Applications

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Food Texture and Viscosity: Concept and Measurement CRC Press

Confectionery in a broader sense implies the preservation of sweet meat preparation in the form of candies, caramels, chocolate, processed cocoa products and traditional Indian confections. India is a country with a collection of wide range of different cultures and many festivals and

occasions are being celebrated in different parts of the nation and confectioneries play a major role in those special occasions. Therefore, the confectionery industry in this country has got a huge potential and this sector has grown recently in the India with the entry of many foreign companies. Special emphasis has been made on describing the various process parameters and equipments used with the help of process diagrams wherever necessary. This major content of this book are confectionery ingredients, flavour, gelatinizing agents, gums, glazes, waxes, traditional Indian confections, manufacturing processes and formulations of confections, nutritive value of

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confectionery products. This book also describes about the science and technology of chocolate and confectionery, packaging of confectionery products, quality control, future confectionery industry etc. Apart from these it also contains details of cooking techniques, formulae, processes. The incorporation of flavours and essences, permitted colours used quality control aspects along with sources of plant, machinery and raw material. This book is an invaluable resource for research centers, professionals, entrepreneurs and end users in academic and industry working on the subject.

Manufacture and Refining of Raw Cane Sugar Crabtree Publishing Company

Food Science and Technology: A

Series of Monographs: Food Texture and Viscosity: Concept and Measurement focuses on the texture and viscosity of food and how these properties are measured. The publication first elaborates on texture, viscosity, and food, body-texture interactions, and principles of objective texture measurement. Topics include area and volume measuring instruments, chemical analysis, multiple variable instruments, soothing effect of mastication, reasons for masticating food, rheology and texture, and the rate of compression between the teeth. The book then examines the practice of objective texture

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measurement and viscosity and consistency, including the general equation for viscosity, methods for measuring viscosity, factors affecting viscosity, tensile testers, distance measuring measurements, and shear testing. The manuscript takes a look at the selection of a suitable test procedure and sensory methods of texture and viscosity measurement. Discussions focus on nonoral methods of sensory measurement; correlations between subjective and objective measurements; variations on the texture profile technique; and importance of sensory evaluation. The publication is a vital source of

information for food experts and researchers interested in food texture and viscosity.

**Food Processing Technology**

Springer Science & Business Media  
This book examines both the primary ingredients and the processing technology for making candies. In the first section, the chemistry, structure, and physical properties of the primary ingredients are described, as are the characteristics of commercial ingredients. The second section explores the processing steps for each of the major sugar confectionery groups, while the third section covers chocolate and coatings. The manner in which ingredients function together to

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provide the desired texture and sensory properties of the product is analyzed, and chemical reactions and physical changes that occur during processing are examined. Trouble shooting and common problems are also discussed in each section. Designed as a complete reference and guide, *Confectionery Science and Technology* provides personnel in industry with solutions to the problems concerning the manufacture of high-quality confectionery products.

*A Practical Guide for the Food Industry* Royal Society of Chemistry

Revised edition of: *Industrial chocolate manufacture and use* / edited by Stephen T. Beckett. 2009.

*Atoms and Molecules* Springer Science & Business Media

Understanding interactions among food ingredients is critical to optimizing their performance and achieving optimal quality in food products. The ability to identify, study, and understand these interactions on a molecular level has greatly increased due to recent advances in instrumentation and machine-based computations. Leveraging this knowledge allows for new and unique opportunities for the developers of food products. *Ingredient Interactions: Effects on Food Quality, Second Edition* is an incisive and convenient reference that presents the latest technical information available on food ingredient interactions. This text contains chapters written by internationally renowned experts in their fields who concentrate on the examination of real foods as well as model food systems. It discusses rheological concepts and the application of

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microscopic techniques to study ingredient interactions. The book also describes the transformations mediated by water and the structure-function relationship of starches with different chemical classes of ingredients, as well as interactions involving sweeteners, proteins, enzymes, lipids, emulsifiers, and flavor components. *Ingredient Interactions: Effects on Food Quality, Second Edition* is a comprehensive single-source guide that explains how major food ingredients such as water, starches, sweeteners, lipids, proteins, and enzymes interact with other constituents and affect food quality.

**Modern Technology of Confectionery Industries with Formulae & Processes (2nd Revised Edition)** ASIA PACIFIC BUSINESS PRESS Inc.

Confectionery and chocolate manufacture has

been dominated by large-scale industrial processing for several decades. It is often the case though, that a trial and error approach is applied to the development of new products and processes, rather than verified scientific principles. *Confectionery and Chocolate Engineering: Principles and Applications, Second edition*, adds to information presented in the first edition on essential topics such as food safety, quality assurance, sweets for special nutritional purposes, artisan chocolate, and confectioneries. In addition, information is provided on the fading memory of viscoelastic fluids, which are briefly discussed in terms of fractional calculus, and gelation as a second order phase transition. Chemical operations such as inversion, caramelization, and the Maillard reaction, as well as the complex operations including conching, drying, frying,

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baking, and roasting used in confectionery manufacture are also described. This book provides food engineers, scientists, technologists and students in research, industry, and food and chemical engineering-related courses with a scientific, theoretical description and analysis of confectionery manufacturing, opening up new possibilities for process and product improvement, relating to increased efficiency of operations, the use of new materials, and new applications for traditional raw materials.

**A Quest over the Centuries** John Wiley & Sons

The Mesoamerican population who lived near the indigenous cultivation sites of the "Chocolate Tree" (*Theobroma cacao*) had a multitude of documented applications of chocolate as medicine, ranging from alleviating

fatigue to preventing heart ailments to treating snakebite. Until recently, these applications have received little sound scientific scrutiny. Rather, it has been the reputed health claims stemming from Europe and the United States which have attracted considerable biomedical attention. This book, for the first time, describes the centuries-long quest to uncover chocolate's potential health benefits. The authors explore variations in the types of evidence used to support chocolate's use as medicine as well as note the ongoing tension over categorizing chocolate as food or medicine, and more recently, as functional food or nutraceutical. The authors, Wilson an historian of science and medicine, and Hurst an analytical chemist in the chocolate industry, bring their collective insights to bear upon the development of ideas and practices surrounding the use of chocolate

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as medicine. Chocolate's use in this manner is explored first among the Mesoamerican peoples, then as it is transported to Europe, and back into Colonial North America. The authors then focus upon more recent bioscience experimental undertakings which have been aimed to ascertain both long-standing and novel suggestions as to chocolate's efficacy as a medicinal and a nutritional substance.

Chocolate/s reputation as the most craved food boosts this book's appeal to food and biomedical scientists, cacao researchers, ethnobotanists, historians, folklorists, and healers of all types as well as to the general reading audience.

**Food and Beverage Stability and Shelf Life** Chronicle Books

Introduction to rheology. Tube viscometry. Rotational viscometry. Extensional flow.

**Viscoelasticity.**

Cocoa Production and Processing Technology

Freeman Press

Confectionery and Chocolate

Engineering Principles and Applications John Wiley & Sons

Confectionery and Chocolate Engineering

Springer Science & Business Media

This delicious new book reveals the fascinating science behind some of our favorite candies. If you've ever wondered how candy corn is made or whether Baby Ruth bars really float, as in the movie Caddy shack, then this engaging collection of food for thought is guaranteed to satisfy your hunger for knowledge. As well as delving into candy facts and myths such as the so-called 'sugar high' and the long history of making sweetmeats, the authors explore the chemistry of a candy store full of famous treats, from Tootsie Rolls to Pixy Styx and from



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Jawbreakers to Jordan Almonds. They reveal what makes bubble gum bubbly and why a Charleston Chew is so chewy. Written in an engaging, accessible and humorous style that makes you laugh as you learn, Candy Bites doesn't shy away from the hard facts or the hard questions, about candy. It tackles the chemistry of hydrocolloids in gummy bears alongside the relationship between candy and obesity and between candy and dental cavities. The chapters open a window on the commercial and industrial chemistry of candy manufacture, making this book a regular Pez dispenser of little-known, yet captivating factoids.

Ingredient Interactions CRC Press

Based on the popular Harvard University and edX course, Science and Cooking explores the scientific basis of why recipes work. The spectacular culinary creations of

modern cuisine are the stuff of countless articles and social media feeds. But to a scientist they are also perfect pedagogical explorations into the basic scientific principles of cooking. In Science and Cooking, Harvard professors Michael Brenner, Pia Sørensen, and David Weitz bring the classroom to your kitchen to teach the physics and chemistry underlying every recipe. Why do we knead bread? What determines the temperature at which we cook a steak, or the amount of time our chocolate chip cookies spend in the oven? Science and Cooking answers these questions and more through hands-on experiments and recipes from renowned chefs such as Christina Tosi, Joanne Chang, and Wylie Dufresne, all beautifully

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illustrated in full color. With engaging introductions from revolutionary chefs and collaborators Ferran Adria and José Andrés, *Science and Cooking* will change the way you approach both subjects—in your kitchen and beyond.

*Confectionery and Chocolate Engineering*  
Elsevier

One of the largest food commodities exported from the developing countries to the rest of the world, cocoa has gained increasing attention on the global market—raising many questions about its quality, sustainability and traceability. *Cocoa Production and Processing Technology* presents detailed explanations of the technologies that could be employed to assure sustainable production of high-

quality and safe cocoa beans for the global confectionary industry. It provides overviews of up-to-date technologies and approaches to modern cocoa production practices, global production and consumption trends as well as principles of cocoa processing and chocolate manufacture. The book covers the origin, history and taxonomy of cocoa, and examines the fairtrade and organic cocoa industries and their influence on smallholder farmers. The chapters provide in-depth coverage of cocoa cultivation, harvesting and post-harvest treatments with a focus on cocoa bean composition, genotypic variations and their influence on quality, post-harvest pre-treatments, fermentation techniques, drying, storage and

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transportation. The author provides details on reduction as well as improved cocoa bean cocoa fermentation processes as well as the biochemical and microbiological changes involved and how they influence flavour. He also addresses cocoa trading systems, bean selection and quality criteria, as well as industrial processing of fermented and dried cocoa beans into liquor, cake, butter and powder. The book examines the general principles of chocolate manufacture, detailing the various stages of the processes involved, the factors that influence the quality characteristics and strategies to avoid post-processing quality defects. This volume presents innovative techniques for sustainability and traceability in high-quality cocoa production and explores new product development with potential for cost

and chocolate product quality.

*Chocolate Production and Use* CRC Press

Sexy, rich, and good in bed-chocolate is the ultimate indulgence. And Luscious Chocolate Desserts is the ultimate chocolate cookbook. Lori Longbotham, author of the best-selling Luscious Lemon Desserts, delivers more than 70 of the best recipes for tantalizing cakes, sumptuous tarts and pies, velvety puddings and souffles, plus melt-in-your-mouth cookies, ice cream, and candy—all with enough chocolate to satisfy even the deepest craving. Recipes run from simple-to-prepare chocolate pound cake and chocolate mousse pie to more elaborate desserts such as chocolate profiteroles with chocolate ice cream and chocolate sauce and the decadent mocha tiramisu. For those who don't know their cocoa from their cacao, this compendium for chocoholics educates readers from bean to bar, including how to choose from the many forms of chocolate available in today's

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markets, plus the basics of storing, chopping, melting, and the best part-tasting them. Luscious Chocolate Desserts is pure chocolate satisfaction for proud chocolate lovers everywhere.

Bioprocess Engineering Principles John Wiley & Sons

Enrobed and filled confectionery and bakery products, such as praline-style chocolates, confectionery bars and chocolate-coated biscuits and ice-creams, are popular with consumers. The coating and filling can negatively affect product quality and shelf-life, but with the correct product design and manufacturing technology, the characteristics of the end-product can be much improved. This book provides a comprehensive overview of quality issues affecting enrobed and filled products and strategies to enhance product quality. Part one reviews the formulation of coatings and fillings, with chapters on key topics such as chocolate manufacture, confectionery fats, compound coatings and fat and sugar-based

fillings. Product design issues, such as oil, moisture and ethanol migration and chocolate and filling rheology are the focus of Part two. Shelf-life prediction and testing are also discussed. Part three then covers the latest ingredient preparation and manufacturing technology for optimum product quality. Chapters examine tempering, enrobing, chocolate panning, production of chocolate shells and deposition technology. With its experienced team of authors, Science and technology of enrobed and filled chocolate, confectionery and bakery products is an essential purchase for professionals in the chocolate, confectionery and bakery industries. Provides a comprehensive review of quality issues affecting enrobed and filled products Reviews the formulation of coatings and fillings, addressing confectionery fats, compound coatings and sugar based fillings Focuses on product design issues such as oil, moisture and chocolate filling rheology

The Science of Sugar Confectionery Royal

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## Society of Chemistry

Food Science and the Culinary Arts is a unique reference that incorporates the principles of food and beverage science with practical applications in food preparation and product development. The first part of the book covers the various elements of the chemical processes that occur in the development of food products. It includes exploration of sensory elements, chemistry, and the transfer of energy and heat within the kitchen. The second part looks in detail at the makeup of specific foodstuffs from a scientific perspective, with chapters on meat, fish, vegetables, sugars, chocolate, coffee, and wine and spirits, among others. It provides a complete overview of the food science relevant to culinary students and professionals training to work in the food industry. Provides foundational food science information to

culinary students and specialists Integrates principles of food science into practical applications Spans food chemistry to ingredients, whole foods, and baked and mixed foods Includes a comprehensive glossary of terms in food science

*Methods for Developing New Food Products*  
Academic Press

Explains the basics of food technology and new product development from initial planning through formulation, market research, manufacturing and product launch Carefully outlined test protocols plus quantified sensory, financial and feasibility analysis Recaps key technical concepts across the entire food science curriculum Developed as a comprehensive guide to how food products are planned, budgeted, manufactured and launched, this original textbook forms a cohesive introduction to all phases of food product development. A unique feature of the book is that it reviews the

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main concepts of food chemistry, ingredient functionality, additives, processing, quality control, safety, package labeling and more—virtually the entire food technology curriculum. With this specialized information as context, the book spells out the procedures needed to formulate, cost-justify and test market safe and profitable new products that meet regulatory guidelines and consumer expectations. The technical exposition is highlighted by case studies of novel food items introduced by U.S. companies. Syllabus-ready and furnished with back-of-chapter questions and projects, the volume is highly suited for university courses, including the capstone, as well as in-house and team training short courses in industry.

**Confectionery Packaging Equipment** Wiley-Blackwell

Food Process Engineering and Technology, Third Edition combines scientific depth with practical usefulness, creating a tool for

graduate students and practicing food engineers, technologists and researchers looking for the latest information on transformation and preservation processes and process control and plant hygiene topics. This fully updated edition provides recent research and developments in the area, features sections on elements of food plant design, an introductory section on the elements of classical fluid mechanics, a section on non-thermal processes, and recent technologies, such as freeze concentration, osmotic dehydration, and active packaging that are discussed in detail. Provides a strong emphasis on the relationship between engineering and product quality/safety  
Considers cost and environmental factors  
Presents a fully updated, adequate review of recent research and developments in the area  
Includes a new, full chapter on elements of food

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plant design Covers recent technologies, such as freeze concentration, osmotic dehydration, and active packaging that are discussed in detail

**Industrial Chocolate Manufacture and Use** Springer Science & Business Media

Ensuring that foods and beverages remain stable during the required shelf life is critical to their success in the market place, yet companies experience difficulties in this area. Food and beverage stability and shelf life provides a comprehensive guide to factors influencing stability, methods of stability and shelf life assessment and the stability and shelf life of major products. Part one describes important food and beverage quality deterioration processes, including microbiological spoilage and physical instability. Chapters in this section

also investigate the effects of ingredients, processing and packaging on stability, among other factors. Part two describes methods for stability and shelf life assessment including food storage trials, accelerated testing and shelf life modelling. Part three reviews the stability and shelf life of a wide range of products, including beer, soft drinks, fruit, bread, oils, confectionery products, milk and seafood. With its distinguished editors and international team of expert contributors, Food and beverage stability and shelf life is a valuable reference for professionals involved in quality assurance and product development and researchers focussing on food and beverage stability. A comprehensive guide to factors influencing stability, methods of stability

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and shelf life assessment and the stability and shelf life of major products Describes important food and beverage quality deterioration processes exploring microbiological spoilage and physical instability Investigate the effects of ingredients, processing and packaging on stability and documents methods for stability and shelf life assessment

**Candy Bites** CRC Press

Food Safety Management: A Practical Guide for the Food Industry with an Honorable Mention for Single Volume Reference/Science in the 2015 PROSE Awards from the Association of American Publishers is the first book to present an integrated, practical approach to the management of food safety throughout the

production chain. While many books address specific aspects of food safety, no other book guides you through the various risks associated with each sector of the production process or alerts you to the measures needed to mitigate those risks. Using practical examples of incidents and their root causes, this book highlights pitfalls in food safety management and provides key insight into the means of avoiding them. Each section addresses its subject in terms of relevance and application to food safety and, where applicable, spoilage. It covers all types of risks (e.g., microbial, chemical, physical) associated with each step of the food chain. The book is a reference for food safety managers in different sectors, from primary producers to processing, transport, retail and



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distribution, as well as the food services sector. Honorable Mention for Single Volume Reference/Science in the 2015 PROSE Awards from the Association of American Publishers Addresses risks and controls (specific technologies) at various stages of the food supply chain based on food type, including an example of a generic HACCP study Provides practical guidance on the implementation of elements of the food safety assurance system Explains the role of different stakeholders of the food supply

**Principles and Practice, Third Edition**

Academic Press

Extrusion cooking is a specialist area of food technology because of the complexity of the interactive effects which are inherent

in the system. General predictive modelling is very difficult because ingredients are diverse and can vary considerably. Modelling tends to be product specific- new product development tends to be by experimental designs and good fortune. The emphasis of this book is on the latest and potential applications of twin screw extrusion in food production, specifically co-rotating inter meshing screw extruders. Of course, in order to develop products and maximise the extruder potential in terms of energy, product quality and output, an overall understanding of the material flow mechanism, barrel fill length and rheology is essential. The book aims to give explanations and general guidance with examples of screw design, configuration and

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operating parameters for a variety of product categories. It is also intended to help production operators diagnose the symptoms of particular problems such as temperature control, quality variation, raw material inconsistency, etc. For the product development technologist there is more than one way to make a similar product. For example, equipment manufacturers recommend difficult methods for producing flaked corn. In addition, their machines may differ from each other in terms of screw design, power/ volume ratio, screw tip/barrel clearance, etc. , making scale-up more problematic.