

# **Chocolate Cocoa And Confectionery Science And Technology Chapman Hall Food Science Book**

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 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, 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.

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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.

Now in its fifth edition, Food Science remains the most popular and reliable text for introductory courses in food science and technology. This new edition retains the best format and pedagogical features of previous editions and provides an up-to-date foundation upon which more advanced and specialized knowledge can be built. This essential volume introduces and surveys the broad and complex interrelationships among food ingredients, processing, packaging, distribution and storage, and explores how these factors influence food quality and safety. Reflecting recent advances and emerging technologies in the area, this new edition includes updated commodity and ingredient chapters to emphasize the growing importance of analogs, macro-substitution of fat fiber and sugar substitutes and replacement products especially as they affect new product development and increasing concerns for a healthier diet. Revised processing chapters include changing attitudes toward food irradiation, greater use of microwave cooking and microwaveable products, controlled and modified atmosphere packaging and expanding technologies such as extrusion cooking, ohmic heating and supercritical fluid extraction, new information that addresses concerns about the responsible management of food technology considering environmental, social and economic

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consequences, as well as the increasing globalization of the food industry. Discussions of food safety and consumer protection including newer phytochromic pathogens; HACCP techniques for product safety and quality; new information on food additives; pesticides and hormones and the latest information on nutrition labeling and food regulation. An outstanding text for students with little or no previous instruction in food science and technology. Food Science is also a valuable reference for professionals in food processing, as well as for those working in fields that service, regulate or otherwise interface with the food industry.

Since the publication of the first edition of Industrial Chocolate Manufacture and Use in 1988, it has become the leading technical book for the industry. From the beginning it was recognised that the complexity of the chocolate industry means that no single person can be expert in every aspect of it. For example, the academic view of a process such as crystallisation can be very different from that of a tempering machine operator, so some topics have more than one chapter to take this into account. It is also known that the biggest selling chocolate, in say the USA, tastes very different from that in the UK, so the authors in the book were chosen from a wide variety of countries making the book truly international. Each new edition is a mixture of updates, rewrites and new topics. In this book the new subjects include artisan or craft scale production, compound chocolates and sensory. This book is an essential

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purchase for all those involved in the manufacture, use and sale of chocolate containing products, especially for confectionery and chocolate scientists, engineers and technologists working both in industry and academia. The new edition also boasts two new co-editors, Mark Fowler and Greg Ziegler, both of whom have contributed chapters to previous editions of the book. Mark Fowler has had a long career at Nestle UK, working in Cocoa and Chocolate research and development – he is retiring in 2013. Greg Ziegler is a professor in the food science department at Penn State University in the USA. Confectionery manufacture has been dominated by large scale industrial processing for several decades. Confectionery implies the food items that are rich in sugar and often referred to as a confection and refers to the art of creating sugar based dessert forms, or subtleties (subtlety or sotelty), often with pastillage. The simplest and earliest confection used by man was honey, dating back over 3000 years ago. Traditional confectionery goes back to ancient times, and continued to be eaten through the Middle Ages into the modern era. Sugar confectionery has developed around the properties of one ingredient: Sucrose. It is a non-reducing disaccharide. The principal ingredient in all confectionery is sucrose, which in its refined form has little flavour apart from its inherent sweetness. This handbook contains Packaging in the confectionery industry, Structure of sugar confectionery, Flavouring of confectionery, Confectionery plant, Ingredients, Quality control and chemical analysis,

Medicated confectionery and chewing Gum, Chocolate flow properties, General technical aspects of industrial sugar confectionery manufacture, Manufacture of liquorice paste, Extrusion cooking technology, Manufacture of invert sugar, Marzipan and crystallized confectionery. The manufacture of confectionery is not a science based industry, as these products have traditionally been created by skilled confectioners working empirically. The aim of this handbook is to give the reader a perspective on several processes and techniques which are generally followed in the confectionery industry. The texture and technological properties of confectionery products are to a large extent controlled by its structure. The book is aimed for food engineers, scientists, technologists in research and industry, as well as for new entrepreneurs and those who are engaged in this industry.

Structure and Dynamics

A Quest over the Centuries

Chocolate Science and Technology

Chocolates and Confections: Formula, Theory, and Technique for the Artisan Confectioner, 2nd Edition

The Economics of Chocolate

Refined Tastes

Hidden Persuaders of Cocoa and Chocolate: A Flavor Lexicon for Cocoa and Chocolate Sensory Professionals provides an overview of the tastes, aromas and notes describing cocoa and chocolate. In addition to exploring tastes, aromas

and notes, the book broadens the language for describing chocolate by relating tasting experiences to the process of pairing flavors. This resource, designed for both academics and those working in research and development, equips the reader to describe these attributes in a sensory language for the purposes of new product development or quality improvement. Provides an overview of the tastes, aromas and notes describing cocoa and chocolate Features scientific explanations of the volatile and non-volatile aspects of each flavor Contains science-based categorization of taste, various aromas, trigeminal sensations and atypical flavors Chocolate is available to today's consumers in a variety of colours, shapes and textures. But how many of us, as we savour our favourite brand, consider the science that has gone into its manufacture? This book describes the complete chocolate making process, from the growing of the beans to the sale in the shops. The Science of Chocolate first describes the history of this intriguing substance. Subsequent chapters cover the ingredients and processing techniques, enabling the reader to discover not only how confectionery is made but also how basic science plays a vital role with coverage of scientific principles such as latent and specific heat, Maillard reactions and enzyme processes. There is also discussion of the monitoring and controlling of the production process, and the

importance, and variety, of the packaging used today. A series of experiments, which can be adapted to suit students of almost any age, is included to demonstrate the physical, chemical or mathematical principles involved. Ideal for those studying food science or about to join the confectionery industry, this mouth-watering title will also be of interest to anyone with a desire to know more about the production of the world's favourite confectionery.

Chocolates & Confections, 2e offers a complete and thorough explanation of the ingredients, theories, techniques, and formulas needed to create every kind of chocolate and confection. It is beautifully illustrated with 250 full-color photographs of ingredients, step-by-step techniques, and finished chocolates and confections. From truffles, hard candies, brittles, toffee, caramels, and taffy to butter ganache confections, fondants, fudges, gummies, candied fruit, marshmallows, divinity, nougat, marzipan, gianduja, and rochers, Chocolates & Confections 2e offers the tools and techniques for professional mastery.

The second edition of this book achieved worldwide recognition within the chocolate and confectionery industry. I was pressed to prepare the third edition to include modern developments in machinery, production, and packaging. This has been a formidable task and has taken longer than anticipated. Students still require, in one

book, descriptions of the fundamental principles of the industry as well as an insight into modern methods. Therefore, parts of the previous edition describing basic technology have been retained, with minor alterations where necessary. With over fifty years' experience in the industry and the past eighteen years working as an author, lecturer, and consultant, I have collected a great deal of useful information. Visits to trade exhibitions and to manufacturers of raw materials and machinery in many parts of the world have been very valuable. Much research and reading have been necessary to prepare for teaching and lecturing at various colleges, seminars, and manufacturing establishments. The third edition is still mainly concerned with science, technology, and production. It is not a book of formulations, which are readily available elsewhere. Formulations without knowledge of principles lead to many errors, and recipes are given only where examples are necessary. Analytical methods are described only when they are not available in textbooks, of which there are many on standard methods of food analysis. Acknowledgments I am still indebted to many of the persons mentioned under "Acknowledgments" in the second edition. I am especially grateful to the following.

Chocolate, Cocoa and Confectionery: Science and Technology  
Chocolate, cocoa and confectionery

Confectionery and Chocolate Engineering  
Confectionery Fats Handbook  
From Cocoa Bean to Chocolate  
A Flavor Lexicon for Cocoa and Chocolate  
Sensory Professionals

**Chocolate, cocoa and confectionery Science and  
technology Chocolate, Cocoa and Confectionery: Science  
and Technology Springer Science & Business Media**

**A compact connoisseur's guide, with recipes, to today's  
cutting-edge array of chocolates and chocolate makers  
from former Chez Panisse pastry chef David Lebovitz. In  
this compact volume, David Lebovitz gives a succinct  
cacao botany lesson, explains the process of chocolate  
making, runs through chocolate terminology and types,  
presents information on health benefits, offers an  
evaluating and buying primer, profiles the world's top  
chocolate makers and chocolatiers (with a whole chapter  
dedicated to Paris alone!), and shares dozens of little-  
known factoids in sidebars throughout the book. The  
Great Book of Chocolate includes more than 50 location  
and food photographs, and features more than 30 of  
Lebovitz's favorite chocolate recipes, from Black-Bottom  
Cupcakes to Homemade Rocky Road Candy, Orange and  
Rum Chocolate Mousse Cake to Double Chocolate Chip  
Espresso Cookies. His extensive resource section (with  
websites for international ordering) can bring the world's  
best chocolate to every door. A self-avowed chocoholic,  
Lebovitz nibbles chocolate every day, and with The  
Great Book of Chocolate in hand, he figures the rest of  
us will too.**

**It is a measure of the rapidity of the changes The work  
has been revised and updated, and taking place in the  
food industry that yet another following the logic of the**

flow sheets there is some edition of the Food Industries Manual is required simplification and rearrangement among the chap after a relatively short interval. As before, it is a ters. Food Packaging now merits a separate pleasure to be involved in the work and we hope chapter and some previous sections dealing mainly that the results will continue to be of value to with storage have been expanded into a new readers wanting to know what, how and why the chapter covering Food Factory Design and Opera food industry does the things which it does. tions. For this edition we have made a major depar There is one completely new chapter, entitled ture from the style of earlier editions by comple Alcoholic Beverages, divided into Wines, Beers tely revising the layout of many of the chapters. and Spirits. There is a strain of thought which Previously the chapters were arranged as a series does not yet consider the production of those of notes on specific topics, set out in alphabetical drinks to be a legitimate part of the food industry, order in the manner of an encyclopaedia.

This book, written by global experts, provides a comprehensive and topical analysis on the economics of chocolate. While the main approach is economic analysis, there are important contributions from other disciplines, including psychology, history, government, nutrition, and geography. The chapters are organized around several themes, including the history of cocoa and chocolate — from cocoa drinks in the Maya empire to the growing sales of Belgian chocolates in China; how governments have used cocoa and chocolate as a source of tax revenue and have regulated chocolate (and defined it by law) to protect consumers' health from fraud and industries from competition; how the poor cocoa producers in developing countries are linked through

**trade and multinational companies with rich consumers in industrialized countries; and how the rise of consumption in emerging markets (China, India, and Africa) is causing a major boom in global demand and prices, and a potential shortage of the world's chocolate. Sugar, Confectionery, and Consumers in Nineteenth-Century America**

**The Great Book of Chocolate**

**The Economics of Mutuality**

**Intensely Chocolate**

### **Soft Materials**

A fascinating account for teen readers that captures the history, science, and economic and cultural implications of the harvesting of cacao and creation of chocolate. Readers of *Chew On This* and *The Omnivore's Dilemma* will savor this rich exposé.

Representing the wide breadth academic disciplines involved in this ever-expanding area of research, this reference provides a comprehensive overview of current scientific and technological advancements in soft materials analysis and application.

Documenting new and emerging challenges in this burgeoning field, *Soft Materials* is a unique and outsta

This second edition provides information on recent advances in the science and technology of chocolate manufacture and the

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entire international cocoa industry. It provides detailed review on a wide range of topics including cocoa production, cocoa and chocolate manufacturing operations, sensory perception of chocolate quality, flavour release and perception, sugar replacement and alternative sweetening solutions in chocolate production, industrial manufacture of sugar-free chocolates as well as the nutrition and health benefits of cocoa and chocolate consumption. The topics cover modern cocoa cultivation and production practices with special attention on cocoa bean composition, genotypic variations in the bean, post-harvest pre-treatments, fermentation and drying processes, and the biochemical basis of these operations. The scientific principles behind industrial chocolate manufacture are outlined with detailed explanations of the various stages of chocolate manufacturing including mixing, refining, conching and tempering. Other topics covered include the chemistry of flavour formation and development during cocoa processing and chocolate manufacture; volatile flavour compounds and their characteristics and identification; sensory descriptions and character; and flavour release and perception in chocolate. The

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nutritional and health benefits of cocoa and chocolate consumption as well as the application of HACCP and other food safety management systems such as ISO 22,000 in the chocolate processing industry are also addressed. Additionally, detailed research on the influence of different raw materials and processing operations on the flavour and other quality characteristics of chocolates have been provided with scope for process optimization and improvement. The book is intended to be a desk reference for all those engaged in the business of making and using chocolate worldwide; confectionery and chocolate scientists in industry and academia; students and practising food scientists and technologists; nutritionists and other health professionals; and libraries of institutions where agriculture, food science and nutrition is studied and researched.

A must-have guide to chocolate making and chocolate showpiece design, from renowned confectionery expert Ewald Notter Covering the full spectrum of chocolate work-from the fundamentals of chocolate making to instruction on advanced showpiece design and assembly-The Art of the Chocolatier is the most complete and comprehensive guide to chocolate-making on the market. The book

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covers basic information on ingredients, equipment, and common techniques in the pastry kitchen, while also offering clear, step-by-step instructions on creating small candies and large-scale chocolate pieces. This is the ideal book for pastry students enrolled in chocolate and confectionery courses, as well as working professionals and even serious home confectioners who want to improve their skills in advanced chocolate work.

Illustrated step-by-step instructions cover all the essentials of chocolate-making, from tempering and creating ganache and gianduja to using molds, transfer sheets, and more An entire chapter devoted to Creating a Competition Piece covers the ins and outs of confectionery competition, from preparing for the event and developing a concept to designing and building a winning chocolate showpiece Beautiful full-color photos throughout provide inspiration for chocolate décor and showpiece design, while clear how-to photos illustrate key techniques The Art of the Chocolatier provides expert-level coverage of every aspect of the chocolatier's art for students and professionals alike.

The Chocolate Lover's Guide with Recipes [A Baking Book]

Candy Experiments

Sugar Confectionery and Chocolate

Manufacture

Chocolate

Sweet Science and Dark Secrets of the  
World's Favorite Treat

Kirk-Othmer Food and Feed Technology, 2  
Volume Set

***Chocolate has long been a favorite indulgence. But behind every chocolate bar we unwrap, there is a world of power struggles and political maneuvering over its most important ingredient: cocoa. In this incisive book, Kristy Leissle reveals how cocoa, which brings pleasure and wealth to relatively few, depends upon an extensive global trade system that exploits the labor of five million growers, as well as countless other workers and vulnerable groups. The reality of this dramatic inequity, she explains, is often masked by the social, cultural, emotional, and economic values humans have placed upon cocoa from its earliest cultivation in Mesoamerica to the present day. Tracing the cocoa value chain from farms in Africa, Asia, Latin America, and the Caribbean, through to chocolate***

*factories in Europe and North America, Leissle shows how cocoa has been used as a political tool to wield power over others. Cocoa's politicization is not, however, limitless: it happens within botanical parameters set by the crop itself, and the material reality of its transport, storage, and manufacture into chocolate. As calls for justice in the industry have grown louder, Leissle reveals the possibilities for and constraints upon realizing a truly sustainable and fulfilling livelihood for cocoa growers, and for keeping the world full of chocolate.*

*Candy is more than a sugary snack. With candy, you can become a scientific detective. You can test candy for secret ingredients, peel the skin off candy corn, or float an "m" from M&M's. You can spread candy dyes into rainbows, or pour rainbow layers of colored water. You'll learn how to turn candy into crystals, sink marshmallows, float taffy, or send soda spouting skyward. You can even make your own lightning. Candy Experiments teaches kids a new use for their candy. As children try eye-popping experiments,*

*such as growing enormous gummy worms and turning cotton candy into slime, they'll also be learning science. Best of all, they'll willingly pour their candy down the drain. Candy Experiments contains 70 science experiments, 29 of which have never been previously published. Chapter themes include secret ingredients, blow it up, sink and float, squash it, and other fun experiments about color, density, and heat. The book is written for children between the ages of 7 and 10, though older and younger ages will enjoy it as well. Each experiment includes basic explanations of the relevant science, such as how cotton candy sucks up water because of capillary action, how Pixy Stix cool water because of an endothermic reaction, and how gummy worms grow enormous because of the water-entangling properties.*

*Fat is the most expensive component in confectionery such as chocolate. It may comprise of cocoa butter, milk fat, palm oil, lauric oil, exotic fats, etc. This new handbook, with a large number of figures and tables, provides a comprehensive guide to all aspects of*

**confectionery fats, with particular emphasis on the later. Unlike sugar confectionery, chocolate is a fat-continuous product and the sugar, like the other non-fat components, is merely mixed with the fat rather than melted/boiled. The properties of chocolate confectionery are thus determined mainly by the fat, which comprises about 26-35% in a typical chocolate formulation. The book describes the essential physical chemistry needed to understand the properties of confectionery fats, analytical methods, raw materials, the production and properties of confectionery fats, and their application in sugar and chocolate confectionery. It concludes with consideration of legislation and regulatory aspects of producing confectionery and of using milk fat, cocoa butter and alternative fats together with a chapter on analytical methods for detecting and quantifying confectionery fats. Finally, four appendixes provide: a glossary of terms and abbreviations used; details of confectionery fat manufacturers;**

*details of confectionary fat products produced by these manufacturers; and a list of websites from other relevant organizations that the reader may find useful.*

*In the face of constant change, the nature of business must evolve rapidly if it is to remain relevant to society at large. How then should business change to meet the requirements of the 21st century, in which unbridled globalization and technological advancements are having profound affects on the wellbeing and prosperity of both the people and the planet? The achievement of purpose is the key to successful transformation - not just having a purpose, but making that purpose real at every level of the organization. This is the first book to provide a precise description of how companies can put purpose into practice. Based on a groundbreaking research project undertaken jointly between the Saïd Business School at the University of Oxford and Mars Catalyst, the think tank of Mars Inc., it provides a highly accessible account of how companies should determine and*

***implement their corporate purposes. It outlines why corporate purpose is so important and how it can both address the major challenges the world faces today and deliver enhanced performance for business. Fourteen detailed case studies illustrate how companies of different sizes, sectors, and geographies have put purpose into practice and their experiences of doing so. These cases give deep insights into the way in which companies can build purposeful businesses, map and shape their ecosystems, identify failures and problems, align management, and create partnerships to deliver their purposes against which they can measure their performance. The achievement of purpose is a very real issue that every responsible leader in business, finance, and business academia must now face. This book will equip executives, managers, investors, and policymakers with the tools that they require to understand how the notion of corporate purpose should become a corporate reality.***

***The Science of Chocolate  
Properties, Production and Application***

## ***Food Science***

### ***Hidden Persuaders in Cocoa and Chocolate***

#### ***The Book of Chocolate***

#### ***Chocolate Production and Use***

This book takes the reader on the journey of chocolate, to discover how confectionery is made and will appeal to those with a fascination for chocolate.

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 transportation. The author provides details on 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

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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 reduction as well as improved cocoa bean and chocolate product quality.

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

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based fillings Focuses on product design issues such as oil, moisture and chocolate filling rheology

This two-volume set features selected articles from the Fifth Edition of Wiley's prestigious Kirk-Othmer Encyclopedia of Chemical Technology. This compact reference features the same breadth and quality of coverage found in the original, but with a focus on topics of particular interest to food technologists, chemists, chemical and process engineers, consultants, and researchers and educators in food and agricultural businesses, alcohol and beverage industries, and related fields.

Making Chocolate

Beckett's Industrial Chocolate Manufacture and Use

Cocoa Production and Processing Technology

Food Industries Manual

Cocoa

From Bean to Bar to S'more: A Cookbook

The authors had five objectives in preparing this book:

(i) to bring together relevant information on many raw materials used in the manufacture of sweets and chocolate; (ii) to describe the principles involved and to relate them to production with maximum economy but maintaining high quality; (iii) to describe both traditional and modern production processes, in particular those continuous methods which are finding increasing application; (iv) to give basic recipes and methods, set out in a form for easy reference, for producing a large variety of sweets, and capable of easy modification to suit the raw materials and plant available; (v) to explain the elementary calculations most likely to be required. The various check lists and charts, showing the more likely faults and how to

eliminate them, reflect the fact that art still plays no small part in this industry. To help users all over the world, whatever units they employ, most for mulations are given in parts by weight, but tables of conversion factors are provided at the end of the book. There also will be found a collection of other general reference data in tabular form; while the Glossary explains a number of technical terms, many of them peculiar to the industry.

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. The purpose of this book is to describe the features of unit operations used in confectionary manufacturing. In contrast to the common technology-focused approach to this subject, this volume offers a scientific, theoretical account of confectionery manufacture, building on the scientific background of chemical engineering. The large diversity of both raw materials and end products in the confectionery industry makes it beneficial to approach the subject in this way. The industry deals with a variety of vegetable based raw materials as well as milk products, eggs, gelatin, and other animal-based raw materials. A study of confectionery and chocolate engineering must therefore examine the physical and chemical, as well as the biochemical and microbiological properties of the processed materials. By characterizing the unit operations of confectionery

manufacture the author, who has over 40 years' experience in confectionery manufacture, aims to open up new possibilities for improvement relating to increased efficiency of operations, the use of new materials, and new applications for traditional raw materials. The book is aimed at food engineers, scientists, technologists in research and industry, as well as graduate students on relevant food and chemical engineering-related courses.

Since the third edition of this standard work in 1999, there has been a significant increase in the amount of chocolate manufactured worldwide. The fourth edition of *Industrial Chocolate Manufacture and Use* provides up-to-date coverage of all major aspects of chocolate manufacture and use, from the growing of cocoa beans to the packaging and marketing of the end product. Retaining the important and well-received key features of the previous edition, the fourth edition also contains completely new chapters covering chocolate crumb, cold forming technologies, intellectual property, and nutrition. Furthermore, taking account of significant changes and trends within the chocolate industry, much new information is incorporated, particularly within such chapters as those covering the chemistry of flavour development, chocolate flow properties, chocolate packaging, and chocolate marketing. This fully revised and expanded new edition is an essential purchase for all those involved in the manufacture and use of chocolate.

How does a cocoa bean turn into tasty chocolate?  
Follow each step in the food production cycle—from

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planting cocoa trees to eating a sweet treat—in this fascinating book!

Science and Technology of Enrobed and Filled Chocolate, Confectionery and Bakery Products  
From Classic Confections to Sensational Showpieces  
Cocoa Butter and Related Compounds  
Confectionery Science and Technology  
The Amazing Story of the World's Favorite Candy  
The Art of the Chocolatier

A look at sugar in 19th-century American culture and how it rose in popularity to gain its place in the nation's diet today. American consumers today regard sugar as a mundane and sometimes even troublesome substance linked to hyperactivity in children and other health concerns. Yet two hundred years ago American consumers treasured sugar as a rare commodity and consumed it only in small amounts. In *Refined Tastes: Sugar, Confectionery, and Consumers in Nineteenth-Century America*, Wendy A. Woloson demonstrates how the cultural role of sugar changed from being a precious luxury good to a ubiquitous necessity. Sugar became a social marker that established and reinforced class and gender differences. During the eighteenth and early nineteenth centuries, Woloson explains, the social elite saw expensive sugar and sweet confections as symbols of their wealth. As refined sugar became more affordable and accessible, new confections—children's candy,

ice cream, and wedding cakes—made their way into American culture, acquiring a broad array of social meanings. Originally signifying male economic prowess, sugar eventually became associated with femininity and women’s consumerism. Woloson’s work offers a vivid account of this social transformation—along with the emergence of consumer culture in America. “Elegantly structured and beautifully written . . . As simply an explanation of how Americans became such avid consumers of sugar, this book is superb and can be recommended highly.” —Ken Albala, Winterthur Portfolio “An enlightening tale about the social identity of sweets, how they contain not just chewy centers but rich meanings about gender, about the natural world, and about consumerism.” —Cindy Ott, Enterprise and Society

Cocoa and chocolate are the subjects of much research in the fields of food chemistry, food technology, and health science. We now know that cocoa contains a remarkable number of bioactive compounds, and these are being tested in humans to verify their disease prevention characteristics. This state of the art text thoroughly explores the different aspects of the relationship between chocolate and health. After introductory discussion of the historical background, careful attention is devoted to technological developments designed to improve the health-giving qualities of chocolate

and biochemical and clinical trials of cocoa and its components. Various health impacts of cocoa and chocolate are thoroughly evaluated, including acute vascular effects and effects on blood pressure, blood lipids, and platelets. Psychological drivers of chocolate consumption and craving are also considered. Readers will find this book to be a rich source of essential information on cocoa and chocolate, their purported health-giving qualities, and the advances that are being made in this area. From nationally-lauded San Francisco chocolate maker, Dandelion Chocolate, comes the first ever complete guide to making chocolate from scratch. From the simplest techniques and technology—like hair dryers to rolling pins—to the science and mechanics of making chocolate from bean to bar, *Making Chocolate* holds everything the founders and makers behind San Francisco's beloved chocolate factory have learned since the day they first cracked open a cocoa bean. Best known for their single origin chocolate made with only two ingredients—cocoa beans and cane sugar—Dandelion Chocolate shares all their tips and tricks to working with cocoa beans from different regions around the world. There are kitchen hacks for making chocolate at home, a deep look into the nuts, bolts, and ethics of sourcing beans and building relationships with producers along the supply chain, and for

ambitious makers, tips for scaling up. Complete with 30 recipes from the chocolate factory's much-loved pastry kitchen, *Making Chocolate* is a resource for hobbyists and more ambitious makers alike, as well as anyone looking for maybe the very best chocolate chip cookie recipe in the world. 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 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.

Second Edition

Chocolate as Medicine

Confectionery Products Handbook (Chocolate,  
Toffees, Chewing Gum & Sugar Free  
Confectionery)

Principles and Applications

Science and technology

Industrial Chocolate Manufacture and Use

**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 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.**

**This book covers the progress of the last 10 years of studies on cocoa butter. Descriptions of several aspects, including physical characteristics such as rheology, hardness, melt profiles, etc., studied by new and advanced techniques are included. Similarly, the polymorphism of cocoa butter is reconsidered in light of studies done by synchrotron DSC, FTIR, and SAXS techniques. These data are complemented by new understandings on the cause of the crystallization and transitions of the polymorphs. Other aspects such as the effect of minor components, emulsifiers, and other fats are discussed in great detail in this book. Brings together all that is known about cocoa butter into one book Describes physical characteristics of cocoa butter including rheology, hardness, and melt profiles Reconsiders polymorphism of cocoa butter in light of recent studies by various analytical techniques Presents new understandings on the cause of crystallization and transitions of**

## **polymorphs**

**"From its origin as the sacred, bitter drink of South American rulers to the familiar candy bars sold by today's multimillion dollar businesses, people everywhere have fallen in love with chocolate, the world's favorite flavor...Join science author HP Newquist as he explores chocolate's fascinating history."--**

**The popularity of the 1973 fifth edition of The Technology of Cake Making has continued in many of the English-speaking countries throughout the world. This sixth edition has been comprehensively revised and brought up to date with new chapters on Cream, butter and milkfat products, Lactose, Yeast aeration, Emulsions and emulsifiers, Water activity and Reduced sugar Eggs and egg products, Baking fats, and lower fat goods. The chapters on Sugars, Chemical aeration, Nuts in confectionery, Chocolate, Pastries, Nutritional value and Packaging have been completely rewritten. The increased need for the continuous development of new products does not of necessity mean that new technology has to be constantly introduced. Many of the good old favourites may continue to be produced for many years and they form suitable 'bench marks' for new product development. The sixth edition introduces the use of relative density to replace specific volume as a measure of the amount of aeration in a cake batter (the use of relative density is in line with international agreement). Specific volume is kept as a measurement of baked product volume since**

**the industry is comfortable with the concept that, subject to an upper limit, an increase in specific volume coincides with improvement in cake quality.**

### **Chocolate and Health**

#### **The Technology of Cake Making**

#### **Putting Purpose Into Practice**

*A tantalizing collection of dessert recipes for true chocolate lovers Chocolate lovers have more and more ways to get their fix with high-cacao, high-quality chocolate beckoning from grocery shelves all over the country. Intensely Chocolate offers luscious recipes for cakes, brownies, muffins, tarts, cookies, custards, candies, and frozen desserts that will make any chocolate lover drool. Here, you'll find new ideas, and classics even better than you remember them. From bittersweet high-cacao content to chocolates mixed with fruits, nuts, spices, and more-there's almost no limit to what you can do with chocolate. Intensely Chocolate gives you the ideas and guidance to turn this beloved ingredient into splendid desserts. 100 recipes cover beloved favorites like Individual Molten Mocha Cakes and exciting new ideas like Chocolate-Passion Fruit Ganache Tart. This lushly illustrated book also includes helpful information on available ingredients and how to use them. These recipes are perfect for today's high-quality chocolate, but simple preparations put these unforgettable treats within easy reach. For anyone*

Get Free Chocolate Cocoa And Confectionery  
Science And Technology Chapman Hall Food  
Science Book

*looking for a new twist on their favorite dessert or creative ideas for using high-quality artisan chocolates, Intensely Chocolate is the essential guide to the world's favorite confection.*