A comprehensive two-volume set that describes the science and technology involved in the production and analysis of alcoholic beverages. At the heart of all alcoholic beverages is the process of fermentation, particularly alcoholic fermentation, whereby sugars are converted to ethanol and many other minor products. The Handbook of Alcoholic Beverages tracks the major fermentation process, and the major chemical, physical and technical
processes that accompany the production of the world’s most familiar alcoholic drinks. Indigenous beverages and small-scale production are also covered to a significant extent. The overall approach is multidisciplinary, reflecting the true nature of the subject. Thus, aspects of biochemistry, biology (including microbiology), chemistry, health science, nutrition, physics and technology are all necessarily involved, but the emphasis is on chemistry in many areas of the book. Emphasis is also on more recent developments and innovations, but there is sufficient background for less experienced readers. The approach is unified, in that although different beverages are dealt with in different chapters, there is extensive cross-referencing and comparison between the subjects of each chapter. Divided into five parts, this comprehensive two-volume work presents: INTRODUCTION, BACKGROUND AND HISTORY: A simple introduction to the history and development of alcohol and some recent trends and developments, FERMENTED BEVERAGES: BEERS, CIDERS, WINES AND RELATED DRINKS: the latest innovations and aspects of the different fermentation processes used in beer, wine, cider, liqueur wines, fruit wines, low-alcohol and related beverages. SPIRITS: cover distillation methods and stills used in the production of whisky, cereal- and cane-based spirits, brandy, fruit spirits and liqueurs. ANALYTICAL METHODS: covering the monitoring of processes in the production of alcoholic beverages, as well as sample preparation, chromatographic, spectroscopic, electrochemical, physical, sensory and organoleptic methods of analysis. NUTRITION AND HEALTH ASPECTS RELATING TO ALCOHOLIC BEVERAGES: includes a discussion on nutritional aspects, both macro- and micro-nutrients, of alcoholic beverages, their ingestion, absorption and catabolism, the health consequences of alcohol, and details of the additives and residues within the various beverages and their raw materials.

Cane Sugar Engineering

Handbook of Cane Sugar Engineering

Handbook of Cane Sugar Engineering focuses on the technologies, equipment, methodologies, and
processes involved in cane sugar engineering. The handbook first underscores the delivery, unloading, and handling of cane, cane carrier and knives, and tramp iron separators. The text then examines crushers, shredders, combinations of cane preparators, and feeding of mills and conveying bagasse. The manuscript takes a look at roller grooving, pressures in milling, mill speeds and capacity, and mill settings. Topics include setting of feed and delivery openings and trash plate, factors influencing capacity, formula for capacity, fiber loading, tonnage records, linear speed and speed of rotation, sequence of speeds, hydraulic pressure, and types of roller grooving. The book then elaborates on electric and turbine mill drives, mill gearing, construction of mills, extraction, milling control, purification of juice, filtration, evaporation, sugar boiling, and centrifugal separation. The handbook is a valuable source of data for engineers involved in sugar cane engineering.

Introduction to Cane Sugar Technology

This volume of the Bioenergy Plants compendium contains a collection of chapters that focus on the history, economics, and practical sciences related to sugarcane. As one of the key biofuel crops in the world that is under large-scale cultivation, sugarcane is attracting interests for its adoption and emulation worldwide. With a high ratio of energ

Principles of Sugar Technology

With approximately 25% of the material revised, here is the Eleventh Edition of what the sugar industry considers the "Sugar Bible." A readily accessible reference, it covers almost everything one needs to know about sugar—from how to control losses, reduce costs, and increase productivity to understanding quality standards and premium/penalty scales of sugar products. This definitive reference has been continuously in print for 96 years.

Biomass Gasification and Pyrolysis
Introduction to Cane Sugar Technology provides a concise introduction to sugar technology; more specifically, cane sugar technology up to the production of raw sugar. Being intended originally for use in a post-graduate university course, the book assumes a knowledge of elementary chemical engineering as well as adequate knowledge of chemistry. In the field of sugar manufacture itself, the object of the book is to place more emphasis on aspects which are not adequately covered elsewhere. In accordance with this objective, attention has been concentrated mainly on processes and operation of the factory, and description of equipment is made as brief as possible, with numerous references to other books where more detail is available. The emphasis on operation rather than equipment has also been prompted by observation of quite a few factories in different countries where good equipment is giving less than its proper performance due to inefficient operation and supervision. The book is confined to the raw sugar process, which has been the author's main interest. Refining is discussed only to the extent required to explain refiners' requirements concerning quality of raw sugar.

Modelling and Analysis of Hybrid Supervisory Systems

Site Planning and Design Handbook, Second Edition

Tropical biomass: a resource for all seasons; Sugar planting vs energy planting; Energy cane theory; Energy cane management; Energy cane utilization; Lignocellulose utilization.

The Energy Cane Alternative

This book offers comprehensive coverage of the design, analysis, and operational aspects of biomass gasification, the key technology enabling the production of biofuels from all viable sources--some examples being sugar cane and switchgrass. This versatile resource not only explains the basic principles of energy conversion systems, but also provides valuable
insight into the design of biomass gasifiers. The author provides many worked out design problems, step-by-step design procedures and real data on commercially operating systems. After fossil fuels, biomass is the most widely used fuel in the world. Biomass resources show a considerable potential in the long term if residues are properly handled and dedicated energy crops are grown. Includes step-by-step design procedures and case studies for Biomass Gasification Provides worked process flow diagrams for gasifier design. Covers integration with other technologies (e.g. gas turbine, engine, fuel cells)

**Sugar Technology**

Sugar cane: Agricultural Production, Bioenergy and Ethanol explores this vital source for "green" biofuel from the breeding and care of the plant all the way through to its effective and efficient transformation into bioenergy. The book explores sugarcane's 40 year history as a fuel for cars, along with its impressive leaps in production and productivity that have created a robust global market. In addition, new prospects for the future are discussed as promising applications in agroenergy, whether for biofuels or bioelectricity, or for bagasse pellets as an alternative to firewood for home heating purposes are explored. Experts from around the world address these topics in this timely book as global warming continues to represent a major concern for both crop and green energy production. Focuses on sugarcane production and processing for bioenergy Provides a holistic approach to sugarcane’s potential – from the successful growth and harvest of the plant to the end-use product Presents important information for "green energy" options

**Biochemical Engineering and Biotechnology**

Biochemical Engineering and Biotechnology, 2nd Edition, outlines the principles of biochemical processes and explains their use in the manufacturing of every day products. The author uses a direct approach that should be very useful for students in following the concepts and practical applications. This book is unique in having many solved problems, case
Handbook of Industrial Chemistry

Manufacture and Refining of Raw Cane Sugar provides an operating manual to the workers in cane raw sugar factories and refineries. While there are many excellent reference and text books written by prominent authors, there is none that tell briefly to the superintendent of fabrication the best and simplest procedures in sugar production. This book is not meant to replace existing books treating sugar production, but rather to supplement them. All that is written in this book, each chapter of which deals with a separate station in a raw sugar factory and refinery, is also based on material already published and known to many in the sugar industry. The book is organized into two parts. Part I covers raw sugar and includes chapters on the harvesting and transportation of sugar cane to the factory; washing of sugar cane and juice extraction; weighing of cane juice; boiling of raw sugar massecuites; and storing and shipping bulk sugar. Part II on refining deals with processes such as clarification and treatment of refinery melt; filtration; and drying, cooling, conditioning, and bulk handling of refined sugar.

Handbook of Cane Sugar Engineering

"This book provides comprehensive coverage and definitions of the most important issues, concepts, trends, and technologies in fuzzy topics applied to databases, discussing current
investigation into uncertainty and imprecision management by means of fuzzy sets and fuzzy logic in the field of databases and data mining. It offers a guide to fuzzy information processing in databases"--Provided by publisher.

Handbook of Cane Sugar Engineering

The first all-in-one reference for the beet-sugar industry Beet-Sugar Handbook is a practical and concise reference for technologists, chemists, farmers, and research personnel involved with the beet-sugar industry. It covers: * Basics of beet-sugar technology * Sugarbeet farming * Sugarbeet processing * Laboratory methods of analysis The book also includes technologies that improve the operation and profitability of the beet-sugar factories, such as: * Juice-softening process * Molasses-softening process * Molasses-desugaring process * Refining cane-raw sugar in a beet-sugar factory The book ends with a review of the following: * Environmental concerns of a beet-sugar factory * Basics of science related to sugar technology * Related tables for use in calculations Written in a conversational, engaging style, the book is user-friendly and practical in its presentation of relevant scientific and mathematical concepts for readers without a significant background in these areas. For ease of use, the book highlights important notes, defines technical terms, and presents units in both metric and British systems. Operating problem-solving related to all stations of sugarbeet processing, frequent practical examples, and given material/energy balances are other special features of this book.

Sugarcane

This book introduces a formalism for modeling complex and large-scale systems that merges Petri nets, differential equation systems, and object-oriented methods. It describes a method that starts from the requirements of a supervisory system and results in a proposal for such a system. The book also presents a validation procedure that allows verification of the formal properties of the hybrid model.
Cane Sugar Engineering

Hugot's Handbook of Cane Sugar Engineering needs little introduction - it can be found in technical libraries in cane sugar producing countries all over the world. Unique in the extent and thoroughness of its coverage, the book has for many years provided the only complete description of cane sugar manufacture, mills, diffusers, boilers and other factory machinery, calculation methods of capacity for every piece of equipment, and process and manufacturing techniques. This new edition has been extensively revised. Information that has become obsolete or of little interest has been deleted or severely shortened. Detailed additions have been made to chapters dealing with recently developed equipment. An entirely new chapter has been added on automation and data processing. Numerous figures, graphs, drawings, photographs, tables and formulae are provided. The metric system has been used throughout the book, but because many factories still use the British units, all measures, formulae and tables and nearly all calculations have been given in both systems.

Introduction to Food Engineering


Polylactic Acid
The definitive guide for the general chemical analyses of non-petroleum based organic products such as paints, dyes, oils, fats, and waxes. * Chemical tables, formulas, and equations * Covers all of the chemical processes which utilize organic chemicals * Physical properties for the most common organic chemicals * Safety Considerations in Process Industries * Industrial Pollution Prevention and Waste Management * Edible Oils, Fats, and Waxes * Soaps and Detergents * Sugar and Other Sweeteners * Paints, Pigments, and Industrial Coatings * Dyestuffs, Finishing and Dyeing of Textiles * Industrial Fermentation * Pharmaceutical Industry * Agrochemicals * Chemical Explosives * Petroleum Processing and Petrochemicals * Polymers and Plastics

**Handbook of Industrial Hydrocarbon Processes**

Written by an author with over 38 years of experience in the chemical and petrochemical process industry, this handbook will present an analysis of the process steps used to produce industrial hydrocarbons from various raw materials. It is the first book to offer a thorough analysis of external factors effecting production such as: cost, availability and environmental legislation. An A-Z list of raw materials and their properties are presented along with a commentary regarding their cost and availability. Specific processing operations described in the book include: distillation, thermal cracking and coking, catalytic methods, hydroprocesses, thermal and catalytic reforming, isomerization, alkylation processes, polymerization processes, solvent processes, water removal, fractionation and acid gas removal. Flow diagrams and descriptions of more than 250 leading-edge process technologies. An analysis of chemical reactions and process steps that are required to produce chemicals from various raw materials. Properties, availability and environmental impact of various raw materials used in hydrocarbon processing.

**Cane Sugar Handbook**

An indispensable, practical guide for everyone involved in the processing of sugar cane.
Confined to essentials, the book is a compact and concise delineation of the unit processes in the manufacture of raw sugar from sugar cane, giving recommended procedures for achieving optimum results.

Chemistry and Processing of Sugarbeet and Sugarcane

Handbook of Sweeteners

The study of sweetness and sweeteners has recently been an area well served by books at all levels, but this volume was planned to fill what we perceived as a gap in the coverage. There appeared to be no book which attempted to combine a study of sweetness with a thorough but concise coverage of all aspects of sweeteners. We set out to include all the important classes of sweeteners, including materials which do not yet have regulatory approval, so that clear comparisons could be made between them and their technological advantages and disadvantages. To achieve our first aim, of sufficient depth of coverage, the accounts within this volume are comprehensive enough to satisfy the requirements of a demanding readership, but cannot be exhaustive in a single volume of moderate proportions. The second aim, of breadth and conciseness, is satisfied by careful selection of the most pertinent material. For the purposes of this book, a sweetener is assumed to be any substance whose primary effect is to sweeten a food or beverage to be consumed, thus including both the nutritive and non-nutritive varieties, from the ubiquitous sucrose to the lesser known, newer developments in alternative sweeteners. The volume has its contents structured in a logical manner to enable it to be used in an ordered study of the complete subject area or as a convenient reference source.

Sugar Cane Cultivation and Management

The world of sugar production has undergone massive changes in the last decade which have
resulted in the emergence of many technological changes as technologists strive to develop more efficient and cheaper processes. This is the first book to be published for several years which describes the current state of sugar technology. It presents the recent developments in beet and cane sugar manufacturing; describes the chemistry of sugar processing and products; and considers trends and future possibilities in sugar production systems and products. The book comprises two sections: beet and cane. The overview of the crop and the production systems that begins each section serves as a framework for the papers that follow. Several papers, i.e. those on sucrose chemistry - are relevant to both sugarcane and sugarbeet. The authors of the papers are all invited speakers well known in their respective fields. The book should be on the shelf of all sugarcane and sugarbeet factories and refiners around the world as well as those companies who are sugar users or who supply goods and services to the sugar industry. It can also be used as a text by universities offering training courses in sugar processing technology.

Oil and Gas Production Handbook: An Introduction to Oil and Gas Production

In print for over a century, it is the definitive guide to cane sugar processing, treatment and analysis. This edition expands coverage of new developments during the past decade--specialty sugars, plant maintenance, automation, computer control systems and the latest in instrumental analysis for the sugar industry.

Compendium of Bioenergy Plants

The cane plant is probably the most efficient utilizer of sun energy for food production, and at the same time provides an equivalent quantity of biomass. The purpose of this book is to set down the unique position of sugar cane in the cogeneration field. Simultaneous with the development of distance-transmission of electricity, sugar cane processors started cogeneration, making use of the cane plant to supply the power for its own processing, and in recent years excess power for export. A broad view of cogeneration in the cane industry,
covering the energy available in a crop, the technology of processing for optimum recovery of energy as well as sugar is presented here. The book describes the most practicable processes for recovering energy in the form of process steam and electricity. Cogeneration in the Cane Sugar Industry should be of interest to a broad spectrum, including government agencies, biomass interests, power generators, public utilities as well as sugar producers and technologist.

Handbook of Alcoholic Beverages

Learn everything you need to know about making your dioramas look real! This fantastic revised edition will show you how with new projects, new photos, and expert tips. Includes painting, weathering, and detailing tips for figures, aircraft, vehicles, and more! By Sheperd Paine.

Unit Operations in Cane Sugar Production

 Annotation An essential reference for engineers, scientists and product designers that already work with polymers and plastics who wish to convert to a sustainable plastic. It covers the properties, synthesis and polymerisation of PLA and processing techniques involved in fabricating parts from this polymer.

Handbook of Cane Sugar Engineering

With the advancement of computers, the use of modeling to reduce time and expense, and improve process optimization, predictive capability, process automation, and control possibilities, is now an integral part of food science and engineering. New technology and ease of use expands the range of techniques that scientists and researchers have at the
Handbook of Sugar Refining

Sugarcane is the most important plant source for sugar and alcohol production and is cultivated in more than 80 countries in tropical and subtropical areas. However, environmental factors negatively influence its yield and jeopardize the prospect to meet the increasing demand for sugar, other sugarcane derived by products and bioethanol. The development of stress tolerant plants is fundamental for the maintenance and increase of crop yields. Biotechnology to Enhance Sugarcane Productivity and Stress Tolerance provides a comprehensive account of both theoretical and practical aspects of sugarcane production. It contains extensive coverage of genome mapping and molecular breeding in sugarcane and presents the status of the elucidation and improvement of plant genomes of economic interest. Through 14 chapters written by eminent scientists with global influence, this book examines various methods for sugarcane improvement through biotechnology. The book focuses on genetic and physical mapping, positioning, cloning, and monitoring of desirable genes using biotechnological approaches for high sugarcane productivity and the development of stress tolerance. Additional information includes the bioengineering of sugarcane, procedures to boost productivity, genetics and assessments for resistance to drought and salinity, genetics for high yields, and various topics of research on sugarcane genetics. It serves as a detailed reference source for cane growers, sugar and sugarcane technologists, students, and professors.

Biotechnology to Enhance Sugarcane Productivity and Stress Tolerance
How to Build Dioramas

Principles of Sugar Technology focuses on the principles, methodologies, and processes involved in sugar technology, including properties of sugar and agents involved in its manufacture. The selection first offers information on the chemical and physical properties of sucrose, as well as decomposition, structure of the sucrose molecule, sucrose derivatives, crystallized and amorphous sucrose, and solvents. The book then takes a look at the physical and chemical properties of reducing sugars and non-nitrogenous organic acids of sugarcane. The publication ponders on nitrogen-containing nonsugars (amino acids and proteins), complex organic nonsugars of high molecular weight, and lipids of sugarcane. Discussions focus on the distribution of nitrogen in sugarcane, amino acids in cane juice and leaves, lignin, pectin, proteins, and significance of waxy and fatty lipids in sugar manufacture. The text also examines color and colored nonsugars, inorganic nonsugars, and agents used in sugar manufacture. The selection is a dependable reference for readers interested in sugar technology.

Spencer-Meade Cane Sugar Handbook


Chemical Engineering Design
Manufacture and Refining of Raw Cane Sugar

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

Handbook of Food and Bioprocess Modeling Techniques

This book provides a reference work on the design and operation of cane sugar manufacturing facilities. It covers cane sugar decolorization, filtration, evaporation and crystallization, centrifugation, drying, and packaging.

Beet-Sugar Handbook

Essential site planning and design strategies, up-to-date with the latest sustainable development techniques Discover how to incorporate sound environmental considerations into traditional site design processes. Written by a licensed landscape architect with more than 20 years of professional experience, this authoritative guide combines established approaches to site planning with sustainable practices and increased environmental sensitivity. Fully
revised and updated, Site Planning and Design Handbook, Second Edition discusses the latest standards and protocols—including LEED. The book features expanded coverage of green site design topics such as water conservation, energy efficiency, green building materials, site infrastructure, and brownfield restoration. This comprehensive resource addresses the challenges associated with site planning and design and lays the groundwork for success. Site Planning and Design Handbook, Second Edition explains how to: Integrate sustainability into site design Gather site data and perform site analysis Meet community standards and expectations Plan for pedestrians, traffic, parking, and open space Use grading techniques to minimize erosion and maximize site stability Implement low-impact stormwater management and sewage disposal methods Manage brownfield redevelopment Apply landscape ecology principles to site design Preserve historic landscapes and effectively utilize vegetation

Food Process Engineering and Technology

Food engineering is a required class in food science programs, as outlined by the Institute for Food Technologists (IFT). The concepts and applications are also required for professionals in food processing and manufacturing to attain the highest standards of food safety and quality. The third edition of this successful textbook succinctly presents the engineering concepts and unit operations used in food processing, in a unique blend of principles with applications. The authors use their many years of teaching to present food engineering concepts in a logical progression that covers the standard course curriculum. Each chapter describes the application of a particular principle followed by the quantitative relationships that define the related processes, solved examples, and problems to test understanding. The subjects the authors have selected to illustrate engineering principles demonstrate the relationship of engineering to the chemistry, microbiology, nutrition and processing of foods. Topics incorporate both traditional and contemporary food processing operations.

Cogeneration in the Cane Sugar Industry
This volume is intended for reference by the commercial sugar cane grower. Disciplines are covered for the successful production of a sugar cane crop. A number of good books exist on field practices related to the growing of sugar cane. Two examples are R.P. Humbert's The Growing of Sugar Cane and Alex G. Alexander's Sugarcane Physiology. Volumes of technical papers, produced regularly by the International Society of Sugar Cane Technologists, are also a source of reference. Perhaps foremost, local associations, such as the South African Sugar Technologists' Association, do excellent work in this regard. In my forty-five years of experience with the day-to-day problems of producing a satisfactory crop of sugar cane, deciding what should be done to produce such a crop was not straightforward. Although the literature dealing with specific subjects is extensive, I tried to consolidate some of the material to provide the man in the field with information, or an overview of the subject matter.