

## E Hugot H Of Cane Sugar Engineering

Sugar Series, Vol. 1: Standard Fabrication Practices for Cane Sugar Mills focuses on the processes, methodologies, and principles involved in standard fabrication practices for cane sugar mills. The publication first tackles the storage and transportation of cane, separation of juice from cane, use and behavior of bagasse, and juice weighing or measuring. The book then elaborates on liming, clarification, carbonatation, and sulfitation processes, and special clarification agents and their history. Topics include phosphate, magnesium compounds, clay, bauxite, charcoal and carbon, blankit, lime kiln, sulfur dioxide, and sample calculation of a sulfur burner. The text examines ion-exchange, evaporation, evaporator cleaning, measurement of heat-transfer coefficient, boiling house operation, seeding and crystallization, molasses centrifugation, and crystallizers. Discussions focus on water circulation, powdered-sugar preparation, crystallization procedure in practice, soda and acid facilities, cleaning shut-down, and variations on chemical cleaning. The manuscript is a vital source of data for researchers wanting to study the standard fabrication practices for cane sugar mills.

The 10th International Symposium on Process Systems Engineering, PSE'09, will be held in Salvador-Bahia, Brazil, on August 16–20, 2009. The special focus of PSE 2009 is Sustainability, Energy, and Engineering. PSE 2009 is the tenth in the triennial series of international symposia on process systems engineering initiated in 1982. The meeting brings together the worldwide PSE community of researchers and practitioners who are involved in the creation and application of computing-based methodologies for planning, design, operation, control and maintenance of chemical and petrochemical process industries. PSE'09 will look at how PSE methods and tools can support sustainable resource systems, emerging technologies in the areas of green engineering, and environmentally conscious design of industrial processes. - sustainable resource systems - emerging technologies in the areas of green engineering - environmentally conscious design of industrial processes

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,

This widely respected and frequently consulted reference work provides a wealth of information and guidance on industrial chemistry and biotechnology. Industries covered span the spectrum from salt and soda ash to advanced dyes chemistry, the nuclear industry, the rapidly evolving biotechnology industry, and, most recently, electrochemical energy storage devices and fuel cell science and technology. Other topics of surpassing interest to the world at large are covered in chapters on fertilizers and food production, pesticide manufacture and use, and the principles of sustainable chemical practice, referred to as green chemistry. Finally, considerable space and attention in the Handbook are devoted to the subjects of safety and emergency preparedness. It is worth noting that virtually all of the chapters are written by individuals who are embedded in the industries whereof they write so knowledgeably.

Limited supplies of fossil fuels and concerns about global warming have created a strong desire to solve the resource issue in the age "beyond petroleum". This reference book, from the "Green Chemistry Series", contains the essential areas of green chemistry and sustainability in modern economies. It is the first book to outline the contribution of chemistry, and of renewable chemical or biological resources, to the sustainability concept and to the potential resolution of the world's energy problems. It describes the current status of technical research, and industrial application, as well as the potential of biomass as a renewable resource for energy generation in power stations, as alternative fuels, and for various uses in chemistry. It outlines the historical routes of the sustainability concept and specifies sustainability in metrics, facts and figures. The book is written by European experts from academia, industry and investment banking who are world leaders in research and technology regarding sustainability, alternative energies and renewable resources. The sustainability aspects covered include: \* consumer behaviour and demands, lifestyles and mega trends, and their impact on innovation in the industry \* consumer industry requirements and their impact on suppliers \* emerging paradigm changes in raw material demand, availability, sourcing, and logistics \* the contribution of the industry to restore the life support systems of the Earth \* socially responsible banking and investment \* sustainability metrics The book highlights the potential of the different forms of renewable raw materials including: \* natural fats and oils \* plant-based biologically active ingredients \* industrial starch \* sucrose \* natural rubber \* wood \* natural fibres It also covers the actual status of biomass usage for green energy generation, green transportation, green chemistry and sustainable nutrition and consumer goods, and it depicts the potentials of green solvents and white biotechnology for modern synthesis and manufacturing technologies. The book is aimed at technical and marketing people in industry, universities and institutions as well as readers in administrations and NGOs. The book will also be of value to the worldwide public interested in sustainability issues and strategies as well as others interested in the practical means that are being used to reduce the environmental impact of chemical processes and products, to further eco-efficiency, and to advance the utilization of renewable resources.

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.

Phase Transitions in Foods, Second Edition, assembles the most recent research and theories on the topic, describing the phase and state transitions that affect technological properties of biological materials occurring in food processing and storage. It covers the role of water as a plasticizer, the effect of transitions on mechanical and chemical changes, and the application of modeling in predicting stability rates of change. The volume presents methods for detecting changes in the physical state and various techniques used to analyze phase behavior of biopolymers and food components. It should become a valuable resource for anyone involved with food engineering, processing, storage, and quality, as well as those working on related properties of pharmaceuticals and other biopolymers. Contains descriptions of non-fat food solids as "biopolymers" which exhibit physical properties that are highly dependent on temperature, time, and water content Details the effects of water on the state and stability of foods Includes information on changes occurring in state and physicochemical properties during processing and storage The only book on phase and state transitions written specifically for the applications in food industry, product development, and research

This book is devoted to the problems of identifying the potential for, designing and implementing, energy-saving measures in beet sugar

factories. As the sugar industries in various countries differ considerably with respect to the economic conditions for factory operation and the level of technological development, the problem range is very broad. It may include the elimination of faulty or unreliable auxiliary equipment, or the introduction of simple improvements in vapour distribution schemes, in factories operated in countries where the need for efficient energy utilization has not really been very urgent until now. On the other hand, there are sugar factories in some other countries where considerable achievements have been made in energy saving but where further progress may still be possible if more advanced engineering problems are solved. The author takes an interdisciplinary approach to its subject aimed at demonstrating how the energy demand of a sugar factory can be affected by the interactions between a number of factors, namely: layout and parameters of the energy conversion and distribution processes; layout and parameters of the sugar manufacturing process and by-processes; characteristics of the equipment and control systems; completeness and accuracy of the energy monitoring systems. The book consists essentially of three parts. In Chapters 1 to 3, some theoretical background is given and engineering principles for creating efficient energy conversion and utilization subsystems in sugar factories are reviewed. The second part - Chapters 4 to 7 - discusses recent developments in these areas and their importance to energy conversion and utilization in sugar factories. The presentation is illustrated with suitable practically-oriented examples based mostly on the author's experience gained from nine years working with an engineering company specializing in the design, erection and modernization of sugar factories, as well as five years of consulting and research for the sugar industry. Short examples are presented in Chapters 1, 2, 3 and 7, while in the third part of the book (Chapters 8 and 9) summaries are given of real-life design analyses of energy subsystems of sugar factories, characterized by different levels of sophistication of the energy economy. The book thus provides a systematic review which will be helpful to managers and technologists in sugar factories where the problem may arise of choosing the most appropriate set of measures that best fit the factory's unique needs. It can also be used in university-level courses on the energy economy of sugar factories, and will be of interest to design engineers and specialists engaged in research in the area.

The second edition of the Food Processing Handbook presents a comprehensive review of technologies, procedures and innovations in food processing, stressing topics vital to the food industry today and pinpointing the trends in future research and development. Focusing on the technology involved, this handbook describes the principles and the equipment used as well as the changes - physical, chemical, microbiological and organoleptic - that occur during food preservation. In so doing, the text covers in detail such techniques as post-harvest handling, thermal processing, evaporation and dehydration, freezing, irradiation, high-pressure processing, emerging technologies and packaging. Separation and conversion operations widely used in the food industry are also covered as are the processes of baking, extrusion and frying. In addition, it addresses current concerns about the safety of processed foods (including HACCP systems, traceability and hygienic design of plant) and control of food processes, as well as the impact of processing on the environment, water and waste treatment, lean manufacturing and the roles of nanotechnology and fermentation in food processing. This two-volume set is a must-have for scientists and engineers involved in food manufacture, research and development in both industry and academia, as well as students of food-related topics at undergraduate and postgraduate levels. From Reviews on the First Edition: "This work should become a standard text for students of food technology, and is worthy of a place on the bookshelf of anybody involved in the production of foods." *Journal of Dairy Technology*, August 2008 "This work will serve well as an excellent course resource or reference as it has well-written explanations for those new to the field and detailed equations for those needing greater depth." *CHOICE*, September 2006

Reviews scientific and technological information about the world's major food plants and their culinary uses. This title features a chapter that discusses nutritional and other fundamental scientific aspects of plant foods. It covers various categories of food plants such as cereals, oilseeds, fruits, nuts, vegetables, legumes, herbs, and spices.

Contributed papers.

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.

Surveys the selection, design, and operation of most of the industrially important separation processes. Discusses the underlying principles on which the processes are based, and provides illustrative examples of the use of the processes in a modern context. Features thorough treatment of newer separation processes based on membranes, adsorption, chromatography, ion exchange, and chemical complexation. Includes a review of historically important separation processes such as distillation, absorption, extraction, leaching, and crystallization and considers these techniques in light of recent developments affecting them.

Handbook of Cane Sugar Engineering Elsevier

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.

This book presents a concise framework for assessing technical and sustainability impacts of existing biorefineries and provides a possible road map for development of novel biorefineries. It offers a detailed, integrated approach to evaluate the entire biomass production chain, from the agricultural feedstock production and transportation, to the industrial conversion and commercialization & use of products. The Brazilian sugarcane biorefinery is used as a case study; however, the methods and concepts can be applied to almost any biomass alternative. Chapters explore the main issues regarding biorefinery assessment, including feedstock production and transportation modeling, biofuels and green chemistry products, as well as assessment of sustainability impacts. This book is a valuable source of information to researchers in bioenergy, green chemistry and sustainability fields. It also provides a useful framework for government agencies, investors and the energy industry to evaluate and predict the success of current and future biorefinery alternatives.

The microcomputer as management tools. Using microcomputers in the sugar cane industry. Financial record systems. Field record systems. Payroll processing. General office use. Decision making applications. The land investment decision. The stubble replacement decision. Budgeting and financial planning. The mechanical versus hand harvesting decision. Machinery management decisions. Market analysis. Integrating record keeping and decision making. Desining the SFRS. Operation of the SFRS. Growers' contributions to the SFRS. Implications for sugar cane management. Assessing microcomputers as management tools. Sources of information for microcomputers users.

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.

This substantially revised and updated classic reference offers a valuable overview and myriad details on current chemical processes, products, and practices. No other source offers as much data on the chemistry, engineering, economics, and infrastructure of the industry. The two volume Handbook serves a spectrum of individuals, from those who are directly involved in the chemical industry to others in related industries and activities. Industrial processes and products can be much enhanced through observing the tenets and applying the methodologies found in the book's new chapters.

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The aim of this book is to present in a single volume an up-to-date account of the chemistry and chemical engineering which underlie the major areas of the chemical process industry. This most recent edition includes several new chapters which comprise important threads in the industry's total fabric. These new chapters cover waste minimization, safety considerations in chemical plant design and operation, emergency response planning, and statistical applications in quality control and experimental planning. Together with the chapters on chemical industry economics and wastewater treatment~ they provide a unifying base on which the reader can most effectively apply the information provided in the chapters which describe the various areas of the chemical process industries. The ninth edition of this established reference work contains the contributions of some fifty experts from industry, government, and academe. I have been humbled by the breadth and depth of their knowledge and expertise and by the willingness and enthusiasm with which they shared their knowledge and insights. They have, without exception, been unstinting in their efforts to make their respective chapters as complete and informative as possible within the space available. Errors of omission, duplication, and shortcomings in organization are mine. Grateful acknowledgment is made to the editors of technical journals and publishing houses for permission to reproduce illustrations and other materials and to the many industrial concerns which contributed drawings and photographs. Comments and criticisms by readers will be welcome.

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.

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