



MICROSTRUCTURAL PRINCIPLES OF FOOD PROCESSING AND ENGINEERING

SECOND EDITION



**JOSE MIGUEL AGUILERA
DAVID W. STANLEY**



AN ASPEN PUBLICATION

Microstructural Principles Of Food Processing And Engineering Food Engineering Series

Victor M. Corman

Microstructural Principles Of Food Processing And Engineering Food Engineering Series:

Microstructural Principles of Food Processing and Engineering José Miguel Aguilera, David W. Stanley, 1999-09-30 An Aspen Food Engineering Series Book This new edition provides a comprehensive reference on food microstructure emphasizing its interdisciplinary nature rooted in the scientific principles of food materials science and physical chemistry The book details the techniques available to study food microstructure examines the microstructure of basic food components and its relation to quality and explores how microstructure is affected by specific unit operations in food process engineering Descriptions of a number of food related applications provide a better understanding of the complexities of the microstructural approach to food processing Color plates

Microstructural Principles of Food Processing &

Engineering José Miguel Aguilera, David W. Stanley, 1990 *Handbook of Food Processing Equipment* George D. Saravacos, Athanasios E. Kostaropoulos, 2012-12-06 Recent publications in food engineering concern mainly food process engineering which is related to chemical engineering and deals primarily with unit operations and unit processes as applied to the wide variety of food processing operations Relatively less attention is paid to the design and operation of food processing equipment which is necessary to carry out all of the food processes in the food plant Significant technical advances on processing equipment have been made by the manufacturers as evidenced by the efficient modern food processing plants There is a need to relate advances in process engineering to process equipment and vice versa This book is an attempt to apply the established principles of transport phenomena and unit operations to the design selection and operation of food processing equipment Since food processing equipment is still designed empirically due to the complexity of the processes and the uncertainty of food properties description of some typical industrial units is necessary to understand the operating characteristics Approximate values and data are used for illustrative purposes since there is an understandable lack of published industrial data

Pulsed Electric Fields Technology for the Food Industry Javier Raso-Pueyo, Volker Heinz, 2010-04-30 In an attempt to improve or replace existing food processing methods several novel technologies have been investigated Some of these emerging technologies have become alternative means of developing new foods or improving the safety and quality of existing ones while reducing energy consumption for the food industry Among all emerging nonthermal technologies high intensity pulsed electric fields PEF is one of the most appealing due to its short treatment times and reduced heating effects Its capability to enhance extraction processes and to inactivate microorganisms at temperatures that do not cause any deleterious effect on flavor color or nutrient value of foods opens interesting possibilities for the food processing industry Pulsed Electric Fields Technology for the Food Industry presents the information accumulated on PEF during the last 15 years by experienced microbiologists biochemists food technologists and electrical and food engineers It offers to anyone interested in this subject a comprehensive knowledge in this field

Ultra High Pressure Treatment of Foods

Marc E.G. Hendrickx, Dietrich Knorr, 2012-12-06 During the past decade consumer demand for convenient fresh like

safe high quality food products has grown. The food industry has responded by applying a number of new technologies including high hydrostatic pressure for food processing and preservation. In addition food scientists have demonstrated the feasibility of industrial scale high pressure processing. This technology is of specific interest to the food industry because it provides an attractive alternative to conventional methods of thermal processing which often produce undesirable changes in foods and hamper the balance between high quality, flavor and functionality and safety. In addition it offers opportunities for creating new ingredients and products because of the specific actions of high pressure on biological materials and food constituents. It allows food scientists to redesign existing processes and to create entirely new ones using high pressure technology alone or in combination with conventional processes e.g. pressure-temperature combinations. Researchers have investigated high pressure processing for the past century. Scientists such as Hite and Bridgman did pioneering work at the turn of the 20th century. Then during the 1980s and 1990s there was a large effort to investigate the effects of high pressure on biological materials particularly foods. The initial research activities in the late 1980s and early 1990s focused on exploratory activities in the food area.

Hurdle Technologies: Combination Treatments for Food

Stability, Safety and Quality Lothar Leistner, Grahame W. Gould, 2012-12-06. Hurdle Technologies Combination Treatments for Food Stability Safety and Quality is the first work on hurdle technology in which all aspects the possibilities and limitations of hurdle technology are comprehensively outlined and evaluated. World renowned on the subject Leistner and Gould were instrumental in the development of the hurdle technology concept and in the last decades have obtained much practical experience in the application of this successful approach in the food industry worldwide.

Mathematical Modelling of Food Processing Operations Stuart Thorne, 1992. Modelling of meat processing, modelling of membrane processes, moisture transfer, modelling of a liquid food droplet during drying, modelling of water relations in fermentation processes, the modelling of screw extrusion processes, modelling the continuous sterilisation of particulate foods, the application of time-temperature indicator technology to food quality monitoring and perishable inventory management.

Journal of Biobased Materials and Bioenergy, 2007 *The Chemical Engineer*, 1998 *American Book Publishing Record*, 1999 *Food Materials Science*, 1990 *Food Materials Science* José Miguel Aguilera, Peter J. Lillford, 2007-10-24. Food Materials Science provides the science behind structuring processes for foods and applications in food product design. The first in its field the book is an invaluable reference. The creation of added value from raw food materials is a legitimate aspiration of the modern food industry. Adding value to foods requires knowledge of what the consumer wants and creating products that satisfy the demand. Quality, convenience and safety are the major drivers of the modern food industry. Food manufacture is about producing billions of units of standardized products which must be cheap, nutritious, safe and appealing to the consumer's taste. Food products are complex, multicomponent and structured edible materials that nevertheless must comply with the laws of physics and fundamentals of engineering sciences. In the last 20 years the design of food products

with specific functionalities has advanced significantly by the application of scientific knowledge from disciplines such as polymer physics colloidal and mesoscopic physics materials science and new imaging and probing techniques borrowed from chemistry biology and medicine Our knowledge of the relationship between microstructure processing and macroscopic properties continues to increase as the science of food materials advances at a fast pace This book is intended to those interested in viewing food technology as a way to preserve transform and create structures in foods and the related materials science aspects of it It attempts to present a unified vision of what today is considered to be food materials science and some derived applications The book may be used as a text in a course in food materials science at the senior or graduate level or as a supplement text in an advanced food technology course It will also serve as a reference book for professionals in the food industry

Bibliographie Internationale Des Recensions de la Littérature Savante ,1992 *Effect of Blanch Temperature, Blanch Time, and Raw Apple Storage Time on the Consistency and Rheological Properties of Applesauce* Amy M. Godfrey,1993 International Food Marketing & Technology ,1992 **Food Structure** ,1990 **Whitaker's Books in Print** ,1998 **Proceedings of the ... Conference of Food Engineering** ,2001 **Indonesian journal of agricultural postharvest research** ,2015-06 **Materials Science & Engineering** ,2004

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