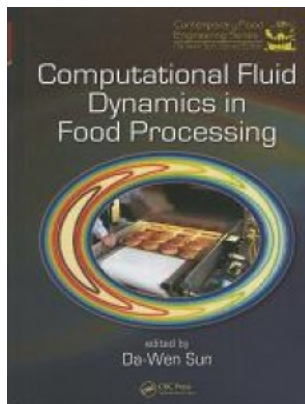


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**Sinopsis**

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The implementation of early-stage simulation tools, specifically computational fluid dynamics (CFD), is an international and interdisciplinary trend that allows engineers to computer-test concepts all the way through the development of a process or system. With the enhancement of computing power and efficiency, and the availability of affordable CFD packages, the applications of CFD have extended into the food industry for modeling industrial processes, performing comprehensive analyses, and optimizing the efficiency and cost effectiveness of the new processes and systems.

Beginning a new series dedicated to contemporary, up-to-date food engineering practices, Computational Fluid Dynamics in Food Processing is the first book of its kind to illustrate the use of CFD for solving heat and mass transfer problems in the food industry. Using a computational grid, CFD solves governing equations that describe fluid flow across each grid cell by means of an iterative procedure in order to predict and visualize the profiles of velocity, temperature, pressure, and other parameters. Starting with an overview of CFD technology and applications, the book illustrates the use of CFD for gaining a qualitative and quantitative assessment of the performance of processes involving heat and mass transfer. Specific chapters cover airflow in refrigerated trucks, retail display cabinets, microwaves, and doorways; velocity in meat dryers and spray drying; thermal sterilization; plate heat exchangers; membrane separation systems; jet impingement ovens; food extrusion and high-pressure processing; prediction of hygiene; design of biosensors; and the fermentation of tea and ripening of cheese.

Drawing from an esteemed panel of international professionals and academics, this groundbreaking book provides engineers and technologists in research, development, and operations with critical, comprehensive, and readily accessible information on the art and science of CFD technology.

Contents.

An Overview of CFD Applications in the Food Industry, T. Norton and D.W. Sun

Teléfonos: 55 44 73 40 y 55 44 72 91

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CFD Optimization of Airflow in Refrigerated Truck Configuration Loaded with Pallets, J. Moureh  
CFD Aided Retail Cabinets Design, G. Cortella  
Improving Performance of a Chilled Multideck Retail Display Cabinet by CFD, A.M. Foster  
CFD Design of Air Curtain for Open Refrigerated Display Cases, H.K. Navaz, R. Faramarzi, and M. Amin  
Investigation of Methods to Improve Retail Food Store Environment Using CFD, S. Tassou and W. Xiang  
CFD Optimization of Air Movement through Doorways in Refrigerated Rooms, A.M. Foster  
CFD Modeling of Simultaneous Heat and Mass Transfer in Beef Chilling, F.J. Trujillo and Q.T. Pham  
CFD Prediction of the Air Velocity Field in Modern Meat Dryers, P.S. Mirade  
CFD Simulation of Spray Drying of Food Products, H. Straatsma, M. Verschueren, M. Gusing, P. de Jong, and R.E.M. Verdurmen  
Three-Dimensional CFD Modeling of a Continuous Industrial Baking Process, W. Zhou and N. Therdthai  
Computation of Airflow Effects in Microwave and Combination Heating, P. Verboven, B.M. Nicolai, and A.K. Datta  
Thermal Sterilization of Food Using CFD, A.G.A. Ghani and M.M. Farid  
CFD Analysis of Thermal Processing of Eggs, S. Denys, J. Pieters, and K. Dewettinck  
CFD Simulation of Stirred Yoghurt Processing in Plate Heat Exchangers, J.M. Maia, J.M. Nóbrega, C.S. Fernandes, and R.P. Dias  
CFD Modeling of the Hydrodynamics of Plate Heat Exchangers for Milk Processing, K. Grijspeerdt, D. Vucinic, and C. Lacor  
Plate Heat Exchanger: Thermal and Fouling Analysis, S. Jun and V.M. Puri  
CFD Applications in Membrane Separations Systems, S.X. Liu  
Applications of CFD in Jet Impingement Oven, D. Kocer, N. Nitin, and M.V. Karwe  
CFD Modeling of Jet Impingement during Heating and Cooling of Foods, E.E.M. Olsson and C. Trägårdh  
Use of CFD for Optimization, Design, and Scale-Up of Food Extrusion, B.K. Ashokan, J.L. Kokini, and M. Dhanasekharan  
Modeling of High-Pressure Food Processing Using CFD, A.G.A. Ghani and M.M. Farid  
Analysis of Mixing Processes Using CFD, R.K. Connelly and J.L. Kokini  
CFD Simulation of Multiphysical-Multi(bio)chemical Interactions of Tea Fermentation and Infusion, G. Lian  
CFD Prediction of Hygiene in Food Processing Equipment, B.B. Busk Jensen and A. Friis  
CFD Design and Optimization of Biosensors for the Food Industry, P. Verboven, Y.T. Atalay, S.

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Vermeir, B.M. Nicolai, and J. Lammertyn  
Modeling Airflow through Vented Packages Containing Horticultural Products, M.J. Ferrua and  
R.P. Singh  
CFD Modeling of Indoor Atmosphere and Water Exchanges during the Cheese Ripening Process,  
P.S. Mirade Index