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Collana	Modern Drying Technology
Altri autori (Persone)	TsotsasEvangelos MujumdarArun S
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Nota di contenuto	Modern Drying Technology: Process Intensification; Contents; Series Preface; Preface of Volume 5; List of Contributors; Recommended Notation; EFCE Working Party on Drying: Address List; 1 Impinging Jet Drying; 1.1 Application; 1.2 Single Nozzle; 1.3 Nozzle Fields; 1.3.1 Arrays of Single Nozzles; 1.3.2 Hole Channels; 1.3.3 Perforated Plates; 1.3.4 Nozzles for Cylindrical Bodies; 1.4 Summary of the Nusselt Functions; 1.5 Design of Nozzle Field; 1.6 Conclusion; References; 2 Pulse Combustion Drying; 2.1 Principle of Pulse Combustion; 2.2 Pulse Combustors: Design and Operation 2.2.1 Pulse Combustors with Mechanical Valves2.2.2 Pulse Combustors with Aerodynamic Valves; 2.2.3 Frequency-Tunable Pulsed Combustors; 2.3 Aerodynamics, Heat and Mass Transfer; 2.3.1 Atomization; 2.3.2 Heat and Mass Transfer; 2.4 Modeling of Pulse Combustion Drying; 2.5 Pulse Combustion in Drying; References; 3 Superheated Steam Drying of Foods and Biomaterials; 3.1 Introduction; 3.2 Principle of Superheated Steam Drying (SSD); 3.3 Atmospheric-Pressure Superheated Steam Drying; 3.4 Low-Pressure Superheated Steam Drying (LPSSD)

3.5 Application of LPSSD to Improve the Quality of Foods and Biomaterials3.6 Concluding Remarks; References; 4 Intensification of Fluidized-Bed Processes for Drying and Formulation; 4.1 Introduction; 4.2 Intensification by Apparatus and Flow Design; 4.2.1 Different Types of Spouted Bed; 4.2.2 Operating Characteristics of Spouted Beds; 4.2.3 Mass and Heat Transfer in ProCell Units; 4.2.4 Discrete Particle Modeling; 4.3 Intensification by Contact Heating; 4.3.1 General Principle; 4.3.2 Main Effects and Influences; 4.3.3 Further Remarks on Modeling; 4.4 Further Methods of Intensification
4.5 ConclusionReferences; 5 Intensification of Freeze-Drying for the Pharmaceutical and Food Industries; 5.1 Introduction; 5.2 Exergetic Analysis (and Optimization) of the Freeze-Drying Process; 5.3 Process Intensification in Vacuum Freeze-Drying of Liquids; 5.3.1 Regulation of Nucleation Temperature During Freezing; 5.3.2 Use of Organic Solvents and Cosolvents; 5.4 Atmospheric Freeze-Drying; 5.5 Use of Combined Technologies for Drying Heat-Sensitive Products; 5.5.1 Microwave-Assisted Drying; 5.5.2 Ultrasound-Assisted Drying; 5.6 Continuous Freeze-Drying; 5.7 Conclusions; References
6 Drying of Foamed Materials6.1 Introduction; 6.2 Foam Properties; 6.3 Foam Spray Drying; 6.3.1 Processing Principles; 6.3.2 Final Product Properties; 6.4 Foam-Mat Drying; 6.5 Summary; References; 7 Process-Induced Minimization of Mass Transfer Barriers for Improved Drying; 7.1 Introduction; 7.2 Structural Characterization of Plant Raw Materials and Impact of PEF and Ultrasound; 7.2.1 Methods for Analysis of Tissue Structure and Quantification of Cell Damage; 7.2.2 PEF: Principles and Impact on Plant Tissue Structure; 7.2.2.1 Introduction to PEF Technology
7.2.2.2 PEF: Impact on Plant Tissue Structure

Sommario/riassunto

The five-volume series provides a comprehensive overview of all important aspects of drying technology like computational tools at different scales (Volume 1), modern experimental and analytical techniques (Volume 2), product quality and formulation (Volume 3), energy savings (Volume 4) and process intensification (Volume 5). Based on high-level cutting-edge results contributed by internationally recognized experts in the various treated fields, this book series is the ultimate reference in the area of industrial drying. Located at the intersection of the two main approaches in modern

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Sommario/riassunto

This comprehensive resource provides a thorough introduction to the security risks, attack vectors and vulnerabilities an Internet of things (IoT) product and its network can face at different phases of its lifecycle. The risks at each stage of the development and operations (DevOps) lifecycle of an IoT product are analyzed. Examples of recent, relevant security threats faced by the industry are discussed and why the security breach happened, how it was resolved, and what could have been done to avoid them will be explained. Readers will learn the best practices to secure their IoT products, and networks in a holistic way. IoT and the diverse and unique nature of IoT applications across the commercial and industrial landscape, are introduced, including the need for securing IoT. The lifecycle of IoT security, specifically the security implementations that need to be carried out at various stages in the operational process of an IoT service are presented, as well as the security requirements during the planning, security integration, operational, maintenance, and planned discontinuation phase of an IoT service. The vulnerabilities in IoT, the various attack vectors exploited by attackers, and preventive measures that can be undertaken to avoid these security attacks are also explored. Readers are acclimated with various steps that must be undertaken to prepare for IoT security

attacks, and techniques that can be employed to detect them. Key challenges involved with implementing appropriate levels of security in IoT due to heterogeneity, interoperability, human errors, and commercial factors are discussed, as well as the need for regulatory guidance for the IoT industry and highlights specific examples of regulations in leading markets across the globe.