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| Nota di contenuto | Modern Drying Technology Volume- 2; Contents; Series Preface; Preface of Volume 2; List of Contributors; Recommended Notation; EFCE Working Party on Drying: Address List; 1 Measurement of Average Moisture Content and Drying Kinetics for Single Particles, Droplets and Dryers; 1.1 Introduction and Overview; 1.2 Magnetic Suspension Balance; 1.2.1 Determination of Single Particle Drying Kinetics - General Remarks; 1.2.2 Configuration and Periphery of Magnetic Suspension Balance; 1.2.3 Discussion of Selected Experimental Results; 1.3 Infrared Spectroscopy and Dew Point Measurement<br>1.3.1 Measurement for Particle Systems - General Remarks1.3.2 Experimental Set-Up; 1.3.3 Principle of Measurement with the Infrared Spectrometer; 1.3.4 Dew Point Mirror for Calibration of IR Spectrometer; 1.3.5 Testing the Calibration; 1.3.6 A Case Study: Determination of Single Particle Drying Kinetics of Powdery Material; |

1.4 Coulometry and Nuclear Magnetic Resonance; 1.4.1 Particle Moisture as a Distributed Property; 1.4.2 Modeling the Distribution of Solids Moisture at the Outlet of a Continuous Fluidized Bed Dryer; 1.4.3 Challenges in Validating the Model; 1.4.4 Coulometry
1.4.5 Nuclear Magnetic Resonance1.4.6 Combination of Both Methods; 1.4.7 Experimental Moisture Distributions and Assessment of Model; 1.5 Acoustic Levitation; 1.5.1 Introductory Remarks; 1.5.2 Some Useful Definitions; 1.5.3 Forces in a Standing Acoustic Wave; 1.5.4 Interactions of a Droplet with the Sound Pressure Field; 1.5.4.1 Deformation of Droplet Shape; 1.5.4.2 Primary and Secondary Acoustic Streaming; 1.5.4.3 Effects of Changing Droplet Size; 1.5.5 Single Droplet Drying in an Acoustic Levitator; 1.5.5.1 Drying Rate of a Spherical Solvent Droplet 1.5.5.2 Drying Rate of an Acoustically Levitated Solvent Droplet1.5.5.3 Drying Rate of Droplets of Solutions or Suspensions; 1.5.6 A Case Study: Single Droplet Drying of Water and an Aqueous Carbohydrate Solution; 1.5.6.1 A Typical Acoustic Levitator; 1.5.6.2 Evaporation Rates of Acoustically-Levitated Pure Water Droplets; 1.5.6.3 Evaporation Rates and Particle Formation with Aqueous Mannitol Solution Droplets; 1.6 Concluding Remarks; References; 2 Near-Infrared Spectral Imaging for Visualization of Moisture Distribution in Foods; 2.1 Introduction
2.2 Principles of Near-Infrared Spectral Imaging2.2.1 Near-Infrared Spectroscopy; 2.2.2 Lambert-Beer Law; 2.2.3 Hyperspectrum; 2.2.4 Classification by Spectral Information Acquisition Technique; 2.2.5 Classification by Spatial Information Acquisition Technique; 2.3 Image Processing; 2.3.1 Extraction of Spectral Images from a Hyperspectrum; 2.3.2 Noise and Shading Correction; 2.3.3 Conversion into Absorbance Image; 2.3.4 Acquisition and Pretreatment of Spectral Data; 2.3.5 Analysis of Absorbance Spectra; 2.3.6 Visualization of Constituent Distribution
2.4 Applications of Near-Infrared Spectral Imaging for Visualization of Moisture Distribution

Sommario/riassunto

Volume two of a five-volume handbook that provides a comprehensive overview of all important aspects of modern drying technology, presenting high-level, cutting-edge results.  Volume 2 comprises modern experimental techniques such as magnetic resonance imaging for measurement and visualisation of moisture profiles in the interior of porous bodies during drying, Raman spectroscopy for measurement of concentration profiles during the drying of thin films/coatings and analytical methods for measurement of drying kinetics. Other modern experimental techniques covered include sorption equilibri