

Handbook of Industrial Drying, Fourth Edition

Editor/Affiliation

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This **Fourth Edition** book includes 12 new chapters covering computational fluid dynamic simulation; solar, impingement, and pulse combustion drying; drying of fruits, vegetables, sugar, biomass, and coal; physicochemical aspects of sludge drying; and life-cycle assessment of drying systems. Addressing commonly encountered dryers as well as innovative dryers with future potential, the fully revised text not only delivers a comprehensive treatment of the current state of the art, but also serves as a consultative reference for streamlining industrial drying operations to increase energy efficiency and cost-effectiveness.

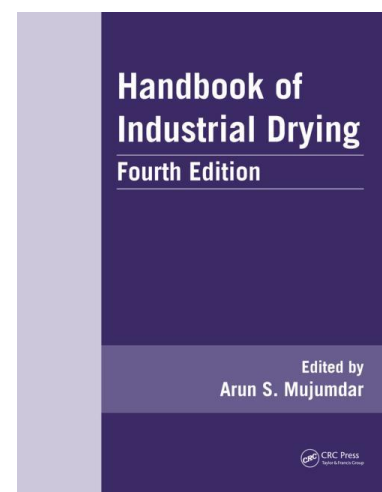


Key Features

- Addresses the basic principles and industrial applications of drying
- Includes 12 new chapters detailing the latest developments in industrial drying
- Discusses key issues such as scale-up in the selection, design, and operation of dryers
- Covers commonly encountered dryers as well as innovative dryers with future potential
- Contains contributions from authors with internationally recognized academic and industrial expertise
- Explains how improvements in dryer design and operation can increase energy efficiency and cost-effectiveness
- Tackles new topics such as computational fluid dynamic simulation, physicochemical aspects of sludge drying, and life-cycle assessment of drying systems

Selected Contents

Section I – Fundamentals: Principles, Classification, and Selection. Experimental Techniques. Process Calculations and Simulations. Transport Properties. Spreadsheet-Aided Design. **Section II – Dryer Types:** Indirect. Rotary. Fluidized Bed. Industrial Spray. Drum. Freeze. Microwave and Dielectric. Solar. Spouted Bed. Impingement. Pneumatic and Flash. Conveyor. Infrared. Superheated Steam. Special and Novel. Intermittent. Pulse Combustion. **Section III – Industrial Sectors:** Foodstuffs. Fish and Seafood. Grain. Rice. Fruits and Vegetables. Herbal Medicines and Tea. Potato, Sweet Potato, and Other Roots. Pharmaceuticals. Nanosize Products. Ceramics. Peat and Biofuels. Fibrous Materials. Textile Products. Pulp and Paper. Wood. Biomass. Mineral Processing. Wastewater Treatment Sludge. Biotechnological Products. Coated Webs. Polymers. Enzymes. Proteins. Coal. **Section IV – Miscellaneous Topics:** Feeding Systems. Emission Control. Energy. Heat Pump Systems. Safety. Control. Solid–Liquid Separation. Frying of Foods. Simprosys. Life-Cycle Assessment. Thermo-Hydro-Mechanical Aspects. Supercritical Fluid-Assisted Drying. Industrial Crystallization. Cost-Estimation.



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