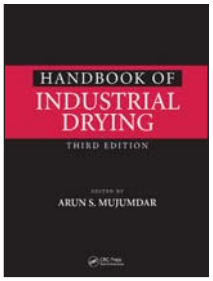
Books

Handbook of Industrial Drying, Third Edition

Edited by Arun S. Mujumdar,
CRC Press/Taylor & Francis Group, Boca Raton, FL,
1312 pages, $269.95, Nov. 2006,
ISBN-13: 978-1574446685



The impressively expanded third edition of the "Handbook of Industrial Drying" represents a major reworking of the second edition, which was published in 1995. The book has nearly doubled in length — growing from 730 pages to 1,312 pages — making it more comprehensive than ever before. Many of the chapters have been completely rewritten by new authors. While a few chapters from the second edition have been weeded out, they've been replaced by at least ten new chapters, addressing the latest drying methods for various materials, as well as current dryer types. This information is complemented by general topics such as energy, the environment, safety, control, and quality.

Sixty-nine authors have contributed to the new edition — many from outside the U.S., giving the book a truly global perspective. With its across-the-board updating, this edition can be considered a completely new Handbook of Industrial Drying.

The 53 well-indexed chapters are organized into four major parts:

Part I establishes a good foundation in the fundamentals, with detailed reviews of drying principles, classification and selection of dryers, experimental drying techniques, basic process calculations and simulations, transport properties in the drying of solids, and spreadsheet-aided dryer design.

The next portion of the book describes 15 different classes of dyers commonly used in industry (*e.g.*, indirect, rotary, fluid bed, etc.), with a separate chapter devoted to each class. Practical commentary and case studies address such topics as classification and selection criteria, design features and procedures, and economics.

Part III looks at the drying of 23 different products, with useful coverage and references on foodstuffs, grains, herbal medicines and teas, fruits and vegetables, pharmaceuticals, nanosize products, fibrous materials, textile products, ceramics, pulp and paper, polymers, coal, and more.

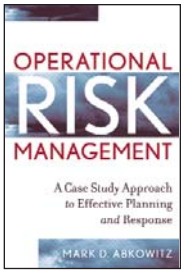
The ten chapters in Part IV cover a variety of subjects related to the business and processes of industrial drying: feeding systems, emission control systems, energy use, safety, control systems, heat pump systems, solid-liquid separation for pretreatment of drying operations, industrial crystallization, frying of foods, and cost estimation. While providing useful information, some of these chapters do not incorporate newer technologies, and some do not include references more recent than the 1990s. For example, Chapter 45 on dryer emission control systems does not contain information on cartridge filters (which today are being used more often than baghouse dust collectors in many applications). In Chapter 48 on safety aspects of industrial dryers, the discussion of explosion protection by venting is behind the times — the sizing of explosion vents is no longer done using the nomographs shown in the book, but is accomplished using equations, such as those presented in the 2007 edition of the National Fire Protection Association's NFPA 68. Readers should refer to the 2008 edition of NFPA 69 for information on explosion prevention techniques that can be applied to dryers (*e.g.*, inerting, deflagration containment, deflagration suppression, etc.).

Despite such shortcomings, this book is a massive and outstanding work, pulling together information from industrial and academic drying experts around the globe. Each chapter is supported with numerous figures and photographs as well as many references so that the reader can pursue the subject further. Any chemical engineer who has to select, specify, design or operate industrial drying systems should find this handbook invaluable.

Stanley S. Grossel, President
Process Safety & Design, Clifton, NJ

Operational Risk Management

Mark D. Abkowitz,
John Wiley & Sons, Inc., Hoboken, NJ,
278 pages, $50, Apr. 2008,
ISBN-13: 978-0470266985



Subtitled "A Case Study Approach to Effective Planning and Response," this book is aimed at business and government leaders — to be used as a preparatory resource when times are good, and as an emergency reference when problems arise. The book examins the safety and security of an organization's people, facilities, assets, and the surrounding community, revealing the underlying causes of catastrophic events.

Employing case studies in a variety of scenarios across many different locations and environments, the author uses historical events to demonstrate how operational risk management practices influence event likelihood and outcomes. Each narrative contains a discussion about why things went wrong, as well as what, if anything, has been done to prevent future occurences.

The case studies may interest a wide audience of general readers, as the book includes coverage of the Union Carbide plant at Bhopal, the Chernobyl meltdown, the attack on the U.S.S. Cole, the Sept. 11, 2001 World Trade Center attack, the eruption of Mount St. Helens, Hurricane Katrina, the space shuttle Challenger and Columbia disasters, the Exxon Veldez oil spill, the Sumatra tsunami, and more.