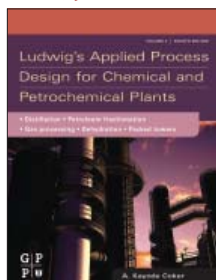


# Books

## LUDWIG'S APPLIED PROCESS DESIGN FOR CHEMICAL AND PETROCHEMICAL PLANTS, VOLUME TWO, 4TH EDITION

A. Kayode Coker, Elsevier, Burlington, MA, 1,008 pages, \$210, June 2010, ISBN-13: 978-0-75-068366-1



Expanding on the foundation set by the late Ernest E. Ludwig's original work, and extending the reach of Volume One as a reference manual for practicing chemical engineers, the fourth edition of Volume Two provides useful distillation troubleshooting and design tips. This latest edition adds new chapters focused on crude fractionation,

gas processing and enhanced distillation processes aimed at today's chemical and petrochemical plants.

The book presents its information in a style reminiscent of an in-house training course delivered by a technical expert from a chemical or petrochemical company. Each chapter provides high-level nuggets of background information supported by reference charts and easy-to-follow examples.

One strength of the fourth edition is found outside the book itself, in a companion website where readers can download unit-conversion software, Excel charts, simulation results, and appendices. Author Coker reaches out to both the visual as well as the tactile learner, and the step-by-step screenshots of the Excel and simulation examples found in the book can stand on their own, even when the reader is away from the computer.

Picking up where Volume One left off, Chapter 10 covers distillation design basics, presenting numerous design methods for columns and recommendations for such activities as selection of physical properties packages for computer simulations and sequencing of distillation equipment. While the chapter offers many calculation methods for theoretical plates and minimum reflux ratios, it lacks a summary of the various methods described. As such, the chapter works best as a reference for those who are looking for examples or a quick refresher.

Next, a new chapter examines industrial petrochemical processes, including crude distillation, gas processing, hydrocarbon absorption and stripping. The crude distillation section provides a solid overview for those who are new to refinery crude distillation operations. Since gas treating and hydrocarbon absorption/stripping are considered common processes in chemical and petrochemical processes, future editions or appendices to this volume could be strengthened by the inclusion of more troubleshooting techniques or case studies.

Following Chapter 11's coverage of basic distillation, Chapter 12 describes more-exotic and enhanced distillation methods. The chapter includes tips on extractive distilla-

tion applications, and an informative case study on reactive distillation that demonstrates the industrial application of the technology. Catalytic distillation is introduced but not discussed in detail, and the author directs those in need of more information to outside reference material.

Additional chapters are devoted to the design of mechanical equipment for separation, and the design of packing. The latter topic is illustrated by an excellent case study on cooling tower design.

The appendices for Volume Two contain a wide range of useful information for chemical engineers in the industry, including equipment datasheets, piping parameters, physical properties of liquids and gases, and a section on ethics in the engineering profession.

For future editions or updates to the online companion, a collection of rules of thumb for distillation design would be helpful as quick references.

As an arsenal of distillation design and problem-solving tools, this edition is a recommended reference manual for practicing engineers, and a good resource for new graduates entering the industry. Process engineers working in a plant environment will find the tips and examples in this book to be good complements to distillation troubleshooting books, such as Kister's *Distillation Operations* and *Distillation Troubleshooting*.

— May Shek

Shell Deer Park Refining Co.

## MICRO-MANUFACTURING ENGINEERING AND TECHNOLOGY

Yi Qin, Elsevier, Burlington, MA, 432 pages, \$195, July 2010, ISBN-13: 978-0-81-551545-6



Micro-manufacturing is of growing importance to the modern economy, but the technologies it employs are not well understood. This book, the latest in Elsevier's Micro and Nano Technologies Series, provides a detailed explanation of the emerging technologies in this field, examining how manufacturing processes function differently at the

micro-scale. The book explores micro-manufacturing from a variety of perspectives — including product and process design, tools, equipment, materials selection, manufacturing systems, and economics — and discusses how the new technologies will bring changes to the wider economy.

Challenges and opportunities in micro-manufacturing are illustrated through case studies, providing real-world examples for those working in, or evaluating, this major area of engineering and economic development.