



# Separation Process Engineering: Includes Mass Transfer Analysis (3rd Edition)

By Phillip C. Wankat

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Wankat thoroughly covers each of today's leading approaches, including flash, column, and batch distillation; exact calculations and shortcut methods for multicomponent distillation; staged and packed column design; absorption; stripping; and more. In this edition, he also presents the latest design methods for liquid-liquid extraction. This edition contains the most detailed coverage available of membrane separations and of sorption separations (adsorption, chromatography, and ion exchange).

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- Detailed discussions of liquid-liquid extraction, including McCabe-Thiele, triangle and computer simulation analyses; mixer-settler design; Karr columns; and related mass transfer analyses
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- Complete coverage of membrane separations, including gas permeation,

- reverse osmosis, ultrafiltration, pervaporation, and key applications
- A full chapter on economics and energy conservation in distillation
- Excel spreadsheets offering additional practice with problems in distillation, diffusion, mass transfer, and membrane separation

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#### About the Author

**Phillip C. Wankat** is Clifton L. Lovell Distinguished Professor of Chemical Engineering and director of undergraduate degree programs at Purdue University's School of Engineering Education. His current research interests include adsorption, large-scale chromatography, simulated moving bed systems, and distillation, as well as improvements in engineering education. He received the 2007 Distinguished Education Alumni Award of Distinction from Purdue's College of Education, and the 2005 Shreve Prize in Chemical Engineering. With K. S. Knaebel, he contributed the Mass Transfer section to *Perry's Handbook of Chemical Engineering, Eighth Edition* (McGraw-Hill, 2008).

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