

# Chemical Thermodynamics for Process Simulation

2<sup>nd</sup> Edition

Jürgen Gmehling, Michael Kleiber, Bärbel Kolbe, Jürgen Rarey

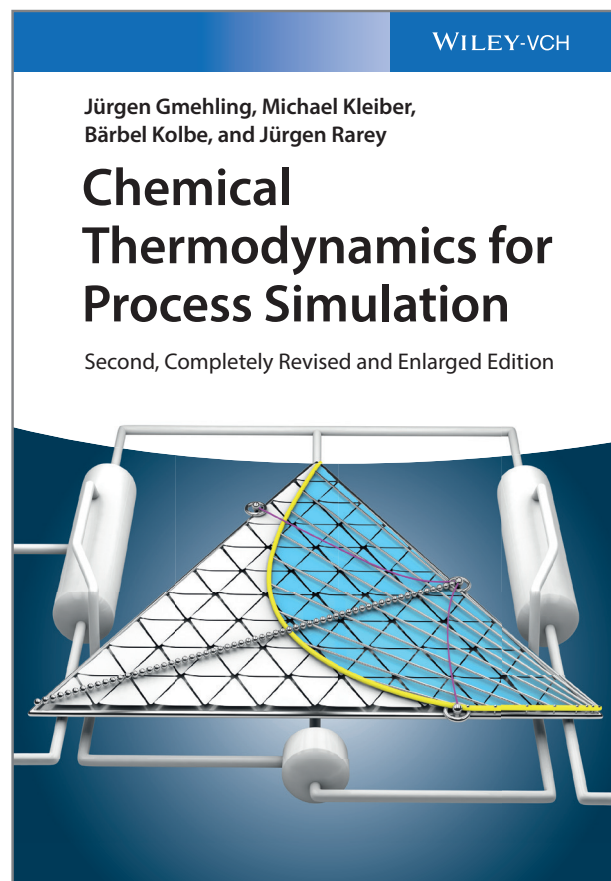
## The only textbook that applies thermodynamics to real-world process engineering problems

This must-read for advanced students and professionals alike is the first book to demonstrate how chemical thermodynamics work in the real world by applying them to actual engineering examples. It also discusses the advantages and disadvantages of the particular models and procedures, and explains the most important models that are applied in process industry. All the topics are illustrated with examples that are closely related to practical process simulation problems. At the end of each chapter, additional calculation examples are given to enable readers to extend their comprehension.

*Chemical Thermodynamics for Process Simulation* instructs on the behavior of fluids for pure fluids, describing the main types of equations of state and their abilities. It discusses the various quantities of interest in process simulation, their correlation, and prediction in detail. Chapters look at the important terms for the description of the thermodynamics of mixtures; the most important models and routes for phase equilibrium calculation; models which are applicable to a wide variety of non-electrolyte systems; membrane processes; polymer thermodynamics; enthalpy of reaction; chemical equilibria, and more.

- Explains thermodynamic fundamentals used in process simulation with solved examples
- Includes new chapters about modern measurement techniques, retrograde condensation, and simultaneous description of chemical equilibrium
- Comprises numerous solved examples, which simplify the understanding of the often complex calculation procedures, and discusses advantages and disadvantages of models and procedures
- Includes estimation methods for thermophysical properties and phase equilibria thermodynamics of alternative separation processes
- Supplemented with MathCAD-sheets and DDBST programs for readers to reproduce the examples

*Chemical Thermodynamics for Process Simulation* is an ideal resource for those working in the fields of process development, process synthesis, or process optimization, and an excellent book for students in the engineering sciences.



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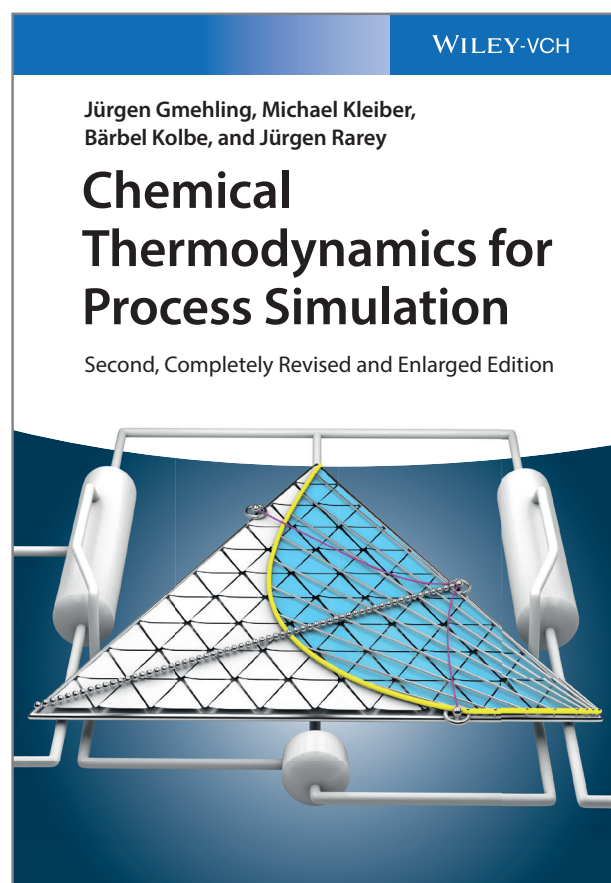
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## TABLE OF CONTENTS

- INTRODUCTION
- PVT BEHAVIOR OF PURE COMPONENTS
- CORRELATION AND ESTIMATION OF PURE COMPONENT PROPERTIES
- PROPERTIES OF MIXTURES
- PHASE EQUILIBRIA IN FLUID SYSTEMS
- CALORIC PROPERTIES
- ELECTROLYTE SOLUTIONS
- SOLID-LIQUID EQUILIBRIA
- MEMBRANE PROCESSES
- POLYMER THERMODYNAMICS
- APPLICATIONS OF THERMODYNAMICS IN SEPARATION TECHNOLOGY
- ENTHALPY OF REACTION AND CHEMICAL EQUILIBRIA
- SPECIAL APPLICATIONS
- PRACTICAL APPLICATIONS
- EXPERIMENTAL DETERMINATION OF PURE COMPONENT AND MIXTURE PROPERTIES
- INTRODUCTION TO THE COLLECTION OF EXAMPLE PROBLEMS
- APPENDIX A Pure Component Parameters
- APPENDIX B Coefficients for High Precision Equations of State
- APPENDIX C Useful Derivations
- APPENDIX D Standard Thermodynamic Properties for Selected Electrolyte Compounds
- APPENDIX E Regression Technique for Pure Component Data
- APPENDIX F Regression Techniques for Binary Parameters
- APPENDIX G Ideal Gas Heat Capacity Polynomial Coefficients for Selected Compounds
- APPENDIX H UNIFAC Parameters
- APPENDIX I Modified UNIFAC Parameters
- APPENDIX J PSRK Parameters
- APPENDIX K VTPR Parameters
- Index



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