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Autore   Ghiaasiaan Seyed Mostafa <1953->

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Nota di contenuto   Cover; Half-title; Title; Copyright; Contents; Preface; Frequently Used Notation; Greek characters; Superscripts; Subscripts; Abbreviations; PART ONE: TWO-PHASE FLOW; 1 Thermodynamic and Single-Phase Flow Fundamentals; 2 Gas-Liquid Interfacial Phenomena; 3 Two-Phase Mixtures, Fluid Dispersions, and Liquid Films; 4 Two-Phase Flow Regimes - I; 5 Two-Phase Flow Modeling; 6 The Drift Flux Model and Void-Quality Relations; 7 Two-Phase Flow Regimes - II; 8 Pressure Drop in Two-Phase Flow; 9 Countercurrent Flow Limitation; 10 Two-Phase Flow in Small Flow Passages; PART TWO: BOILING AND CONDENSATION
11 Pool Boiling12 Flow Boiling; 13 Critical Heat Flux and Post-CHF Heat Transfer in Flow Boiling; 14 Flow Boiling and CHF in Small Passages; 15 Fundamentals of Condensation; 16 Internal-Flow Condensation and Condensation on Liquid Jets and Droplets; 17 Choking in Two-Phase

Flow; APPENDIX A: Thermodynamic Properties of Saturated Water and Steam; APPENDIX B: Transport Properties of Saturated Water and Steam; APPENDIX C: Thermodynamic Properties of Saturated Liquid and Vapor for Selected Refrigerants; APPENDIX D: Properties of Selected Ideal Gases at 1 Atmosphere
APPENDIX E: Binary Diffusion Coefficients of Selected Gases in Air at 1 AtmosphereaAPPENDIX F: Henry's Constant of Dilute Aqueous Solutions of Selected Substances at Moderate Pressures; APPENDIX G: Diffusion Coefficients of Selected Substances in Water at Infinite Dilution at 25oC; APPENDIX H: Lennard-Jones Potential Model Constants for Selected Molecules; APPENDIX I: Collision Integrates for the Lennard-Jones Potential Model; APPENDIX J: Physical Constants; APPENDIX K: Unit Conversions; References; Index

| Sommario/riassunto | This text is an introduction to gas-liquid two-phase flow, boiling and condensation for graduate students, professionals, and researchers in mechanical, nuclear, and chemical engineering. The book provides a balanced coverage of two-phase flow and phase change fundamentals, well-established art and science dealing with conventional systems, and the rapidly developing areas of microchannel flow and heat transfer. It is based on the author's more than 15 years of teaching experience. Instructors teaching multiphase flow have had to rely on a multitude of books and reference materials. This book remedies that problem by covering all the topics essential for a graduate course. Important areas include: two-phase flow model conservation equations and their numerical solution; condensation with and without noncondensables; and two-phase flow, boiling, and condensation in mini and microchannels. |