

## Table of Contents

- Section 1 Introduction
- 1 Definitions and Principles
- Section 2 Fluid Mechanics
- 2 Fluid Statics and Its Applications
- 3 Fluid Flow Phenomena
- 4 Basic Equations of Fluid Flow
- 5 Incompressible Flow in Pipes and Channels
- 6 Flow of Compressible Fluids
- 7 Flow past Immersed Objects
- 8 Transportation and Metering of Fluids
- 9 Agitation and Mixing of Liquids
- Section 3 Heat Transfer and Its Applications
- 10 Heat Transfer by Conduction
- 11 Principles of Heat Flow in Fluids
- 12 Heat Transfer to Fluids without Phase Change
- 13 Heat Transfer to Fluids with Phase Change
- 14 Radiation Heat Transfer
- 15 Heat-Exchange Equipment
- 16 Evaporation
- Section 4 Mass Transfer and Its Applications
- 17 Principles of Diffusion and Mass Transfer between Phases
- 18 Gas Absorption
- 19 Humidification Operations
- 20 Equilibrium-Stage Operations
- 21 Distillation
- 22 Introduction to Multicomponent Distillation
- 23 Leaching and Extraction
- 24 Drying of Solids
- 25 Fixed-Bed Separations
- 26 Membrane Separation Processes
- 27 Crystallization
- Section 5 Operations Involving Particulate Solids
- 28 Properties and Handling of Particulate Solids
- 29 Mechanical Separations
- Appendix 1 Conversion Factors and Constants of Nature
- Appendix 2 Dimensionless Groups
- Appendix 3 Dimensions, Capacities, and Weights of Standard Steel Pipe
- Appendix 4 Condenser and Heat-Exchanger Tube Data
- Appendix 5 Tyler Standard Screen Scale
- Appendix 6 Properties of Liquid Water
- Appendix 7 Properties of Saturated Steam and Water
- Appendix 8 Viscosities of Gases
- Appendix 9 Viscosities of Liquids
- Appendix 10 Thermal Conductivities of Metals

- Appendix 11 Thermal Conductivities of Various Solids and Insulating Materials
- Appendix 12 Thermal Conductivities of Gases and Vapors
- Appendix 13 Thermal Conductivities of Liquids Other Than Water
- Appendix 14 Specific Heats of Gases
- Appendix 15 Specific Heats of Liquids
- Appendix 16 Prandtl Numbers for Gases at 1 atm and 100C
- Appendix 17 Prandtl Numbers for Liquids
- Appendix 18 Diffusivities and Schmidt Numbers for Gases in Air at 0c and 1 atm
- Appendix 19 Collision Integral and Lennard-Jones Force Constants