

Contents

Contributors	vii
Preface	ix
International System of Units (SI) and Conversion Factors	xi

PART ONE Liquid-Liquid Mixtures

DISTILLATION

1.1 Continuous Distillation: Separation of Binary Mixtures	1-3
1.2 Continuous Distillation: Separation of Multicomponent Mixtures	1-59
1.3 Batch Distillation	1-147
1.4 Steam Distillation/Stripping	1-169
1.5 Continuous-Distillation Column Control	1-179
1.6 Solvent Recovery	1-201
1.7 Design of Packed Columns	1-221
1.8 High-Efficiency, Low-Pressure-Drop Packings	1-241

EXTRACTION

1.9 Liquid-Liquid Extraction	1-255
1.10 Commercial Liquid-Liquid Extraction Equipment	1-283

MISCELLANEOUS

1.11 Decantation	1-343
1.12 Ion Exchange Separations	1-351
1.13 Activated-Carbon Systems for Separation of Liquids	1-415
1.14 Dialysis and Electrodialysis	1-449
1.15 Parametric Pumping	1-467

PART TWO Liquids with Dissolved Solids

2.1 Membrane Filtration	2-3
2.2 Hydrometallurgical Extraction	2-105
2.3 Evaporation	2-131
2.4 Crystallization from Solutions	2-151
2.5 Foam Separation Processes	2-183

PART THREE Gas (Vapor) Mixtures

3.1 Gas-Phase Adsorption	3-3
3.2 Design of Gas Adsorption Towers	3-49

PART FOUR Solid-Liquid Mixtures

4.1 Filtration Theory	4-3
4.2 Filter Aid Filtration	4-9
4.3 Batch Filtration	4-15
4.4 Continuous Filtration	4-35
4.5 Centrifugation	4-55
4.6 Cartridge Filtration	4-85
4.7 Felt Strainer Bags	4-95
4.8 Sedimentation	4-113
4.9 Hydrocyclone Separation	4-135
4.10 Drying of Wet Solids	4-141

PART FIVE Solid Mixtures

5.1 Leaching	5-3
5.2 Flotation	5-33

PART SIX Gas-Solid Mixtures

6.1 Gas-Solid Separations	6-3
6.2 Electrostatic Precipitators	6-31

Index follows Section 6.2