Contents

Foreword		vii
Preface		ix
Acknowledgments		xi
Abbreviations		xv
1.	Chemical Process Industries	1
2.	Basic Principles of Chemical Processes and Unit Operations in Chemical Industries	16
3.	Industrial Gases	46
4.	Chlor-caustic and Soda Ash Industry	57
5.	Sulfur and Sulfuric Acid	82
6.	Fertilizer Industry	93
7.	Nitrogenous Fertilizer and Nitric Acid	110
8.	Phosphorus, Phosphatic, Potassium and Mixed Fertilizers	133
9.	Cement and Lime Industries	148
10.	Glass and Refractories	162
11.	Oil and Fats	176
12.	Explosives and Miscellaneous Chemicals	186
13.	Metallurgical Industry in India	195
14.	Leather Industries	206
15.	Coal and Coal as Chemical Feedstock	210
16.	Pulp and Paper Industry	231
17.	Sugar and Alcohol Industry	262
18.	Soap and Detergent	276
19.	Petroleum Refining	289
20.	Petrochemical Industry	349
21.	Polymer, Elastomer and Synthetic Fiber	422
22.	Agrochemicals	475
23.	Dyestuff Industry	484
24.	Paint, Varnish and Lacquers	497

xiv Chemical Process Technology

25. Pharmaceutical Industry	504
26. Corrosion and Material of Construction in Chemical Industries	514
27. Energy Management in Chemical Industry	536
28. Environment, Health and Safety in Chemical Process Industry	550
Appendices	
Appendix 1: Quantities and SI Unit	577
Appendix 2: Physical and Chemical Characteristics of Major Inorganic and Organic Chemicals	582
Appendix 3: Major Petroleum, Petrochemical, Fertilizer and Chemical Industries in India	597
Appendix 4: Major Manufacturing Associations	622
Appendix 5: Cost of Various Crude Oils and Petroleum Products	626
Index	629