

Contents

Foreword / vii
Contributors / viii

Introduction

1: Hazardous Waste and Chemical Substances—Statutory Review / A. Edelman	9
Identifying Hazardous Wastes, 9 Federal Statutes Regulating Chemical Substances, 12	
2: Exposure and Risk Assessment / B. P. Smith	37
Defining Source Terms, 38 Transport and Transformation Analyses, 54 Locating Receptors and Defining Dose, 63 Identifying Toxic Effect of Interest, 65 Health Effects Projection, 68 Evaluating Risk Acceptability, 72 Identifying Control Options, 74 Monitoring Results, 75 Closure, 75 Appendix, 76 References, 76	
3: Chemical, Physical, and Biological Treatment of Hazardous Waste / E. J. Martin, E. T. Oppelt, and B. P. Smith	81
Removal of Toxic Pollutants from Aqueous Wastes, 82 Toxic Materials in POTW Sludges, 107 Treatment of Industrial Hazardous-Waste Sludges and Residues, 130 Treatment of Unusually Toxic Wastes, 142 Appendix 3-1: Pollutant Removability / Treatability, 156 Appendix 3-2: Chemical Treatability Summary, 179 Appendix 3-3: Examples of Treatment Applications, 212 References, 226	
4: Incineration of Hazardous Waste / E. Crumpler and E. J. Martin	227
A Profile of Existing Incineration Techniques, 228 Performance of Hazardous-Waste Incinerators, 230 Incinerator Design Concepts, 236 Types of Incinerators, 240 General Design Principles, 245 Air-Pollution-Control Systems, 286 Cement	

Kilns, 304 Ocean Incineration, 307 Design Problem, 309
References, 315

5: Storage of Hazardous Waste / R. Ball and J. H. Johnson, Jr. 317

Locating Storage Facilities, 318 Facility Index, 325 Sizing Storage
Facilities, 328 Conceptual Design of Facilities, 331 Design of
Facilities, 337 Permitting of Storage Facilities, 339 Facility Management
and Operation, 348 Closure, 353 Appendix 5-1: Regulatory Rating
Curves, 354 Appendix 5-2: Social Score Rating Curves, 363

6: Land Disposal of Hazardous Wastes / R. C. Loehr 365

Contaminant Control Mechanisms in Soil, 369 Landfills, 373 Land
Treatment, 396 Site Selection, 417 Monitoring, 430 References, 437

**7: Hazardous-Waste Leachate Management A. J. Shuckrow, C. J. Touhill,
and A. P. Pajak 441**

Leachate Characteristics, 441 Management Options, 445 Leachate
Management, 447 Leachate Treatment Technologies, 448 Leachate
Treatment-Process Selection, 449 Sample Treatment Process
Trains, 453 References, 466

8: Hazardous-Waste-Management Facility Siting / M. Barclay 469

The Siting Dilemma, 470 The Developer's Objectives, 472 Why Do Most
Developers Fail?, 473 Public Consultation, 482 How to Design and
Operate a Public-Consultation Program, 483 Relation of the Public-
Consultation Program to the Siting Process, 500 Appendix 8-1: Case
Study, 505 Appendix 8-2: Questions People Ask, 513 Reference, 516

Index 517