

## CONTENTS

### *Introduction*

1. Ethics of Chemistry: Meeting a Teaching Need 1-27  
JOACHIM SCHUMMER & TOM BØRSEN

### **Part I: Misuse and Misconduct**

#### *Scientific Misconduct*

2. The Case of the Finicky Reactions: A Case Study of Trust, Accountability, and Misconduct 29-53  
JANET D. STEMWEDEL

#### *Chemical Weapons Research and Production*

3. Ethics of Chemical Weapons Research: Poison Gas in World War One 55-83  
JOACHIM SCHUMMER
4. Ethical Responsibilities in Military-Related Work: The Case of Napalm 85-111  
STEPHEN M. CONTAKES & TAYLOR JASHINSKY

### **Part II: Unforeseen Local Consequences**

#### *Industrial Disasters*

5. Corporate and Governmental Responsibilities for Preventing Chemical Disasters: Lessons from Bhopal 113-140  
INGRID ECKERMAN & TOM BØRSEN

#### *Adverse Effects of Chemical Products*

6. About the Futile Dream of an Entirely Riskless and Fully Effective Remedy: Thalidomide 141-167  
KLAUS RUTHENBERG
7. Risk and Responsibility in Chemical Research: The Case of Agent Orange 169-194  
CLAUS JACOB & ADAM WALTERS

#### *Chemical Waste Disposal*

8. When Laypeople are Right and Experts are Wrong: Lessons from Love Canal 195-219  
RAGNAR FJELLAND



### **Part III: Global and Long-Term Influences and Challenges**

#### *Global Environmental Pollution*

9. Applying an Ethical Judgment Model to the case of DDT 221–247  
TOM BØRSEN & SØREN NORS NIELSEN
10. Applying Utilitarianism and Deontology  
in Managing Bisphenol-A Risks in the United States 249–278  
ABIGAIL MARTIN, ALASTAIR ILES & CHRISTINE ROSEN

#### *Green Chemistry*

11. Undoing Chemical Industry Lock-ins:  
Polyvinyl Chloride and Green Chemistry 279–316  
ALASTAIR ILES, ABIGAIL MARTIN &  
CHRISTINE MEISNER ROSEN

#### *Intergenerational and Global Justice*

12. The Ethics of Rare Earth Elements  
Over Time and Space 317–346  
ABIGAIL MARTIN & ALASTAIR ILES

#### *Hazard Foresight*

13. The Chemical Prediction of Stratospheric Ozone Depletion:  
A Moral Model of Scientific Hazard Foresight 347–374  
JOACHIM SCHUMMER

#### *Climate Engineering*

14. Ethics of Climate Engineering:  
Chemical Capture of Carbon Dioxide from Air 375–401  
DANE SCOTT

### **Part IV: Challenging Human Culture**

#### *Human Enhancement*

15. The Ethical Judgment: Chemical Psychotropics 403–429  
KLAUS BIRKHOLM

#### *Artificial Life*

16. ‘Are You Playing God?’: Synthetic Biology and  
the Chemical Ambition to Create Artificial Life 431–458  
JOACHIM SCHUMMER



*Intellectual Property Rights*

17. The Normative Molecule: Patent Rights and DNA 459–486  
SAURABH VISHNUBHAKAT

**Part V: Codes and Regulations***Codes of Conduct*

18. American Chemical Society Codes of Conduct:  
Past, Present, and Future 487–506  
JEFFREY KOVAC

*Chemical Regulation*

19. Ethics and Chemical Regulation: The Case of REACH 507–534  
JEAN-PIERRE LLORED

Biographical Notes on the Authors 535–541

Acknowledgments 543–544

Name Index 545–548

Subject Index 549–559