

# HAZARDOUS AIR POLLUTANT HANDBOOK



Chester W. Spicer  
Sydney M. Gordon  
Michael W. Holdren  
Thomas J. Kelly  
R. Mukund

*Measurements,  
Properties,  
and Fate  
in Ambient Air*



LEWIS PUBLISHERS

---

# Table of Contents

## Chapter 1

### Hazardous Air Pollutants: A Brief Introduction

1.1	Background.....	1
1.2	The List of Hazardous Air Pollutants.....	2
1.3	Impact of the HAPs List.....	8
1.4	Organization of Information in this Book.....	9
	References.....	10

## Chapter 2

### The Title III Hazardous Air Pollutants: Classification and Basic Properties

2.1	The 188 Hazardous Air Pollutants: Diversity and Derivation.....	11
2.2	Some Common Features of the Title III HAPs.....	11
2.3	Chemical and Physical Properties of the 188 HAPS.....	12
2.4	Polarizability and Water Solubility as Defining Characteristics of Polar and Nonpolar VOCs.....	13
	Appendix.....	23

## Chapter 3

### Measurement Methods for the 188 Hazardous Air Pollutants in Ambient Air

3.1	Introduction.....	55
3.2	Background.....	56
3.3	Survey Approach.....	57
3.4	Status of Current Methods.....	59
3.5	HAPs Method Development: Future Directions.....	60
3.6	Summary.....	62
	References.....	62
	Appendix.....	65

## Chapter 4

### Concentrations of the 188 HAPs in Ambient Air

4.1	Introduction.....	127
4.2	Survey Procedures.....	127
4.3	Ambient Air Concentrations of HAPs.....	129
4.4	Data Gaps.....	131
4.5	Recent Data for High Priority HAPs.....	134
4.6	Summary.....	134
	References.....	134
	Appendix.....	136

## **Chapter 5**

### Atmospheric Transformation Products of Clean Air Act Title III Hazardous Air Pollutants

5.1	Introduction.....	175
5.2	Experimental Approaches for the Study of HAP Transformations.....	176
5.3	Hazardous Air Pollutant Transformations.....	179
5.4	Transformations of 33 high priority HAPs.....	182
5.5	Transformations of Other Atmospheric Chemicals .....	183
5.6	Summary .....	184
	References .....	185
	Appendix .....	187
	<b>Index .....</b>	<b>225</b>