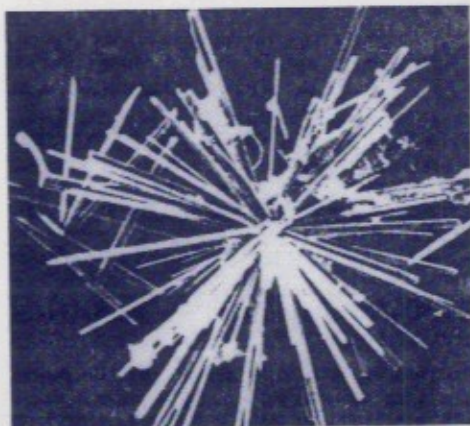
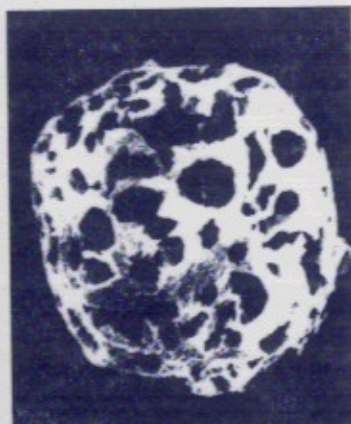
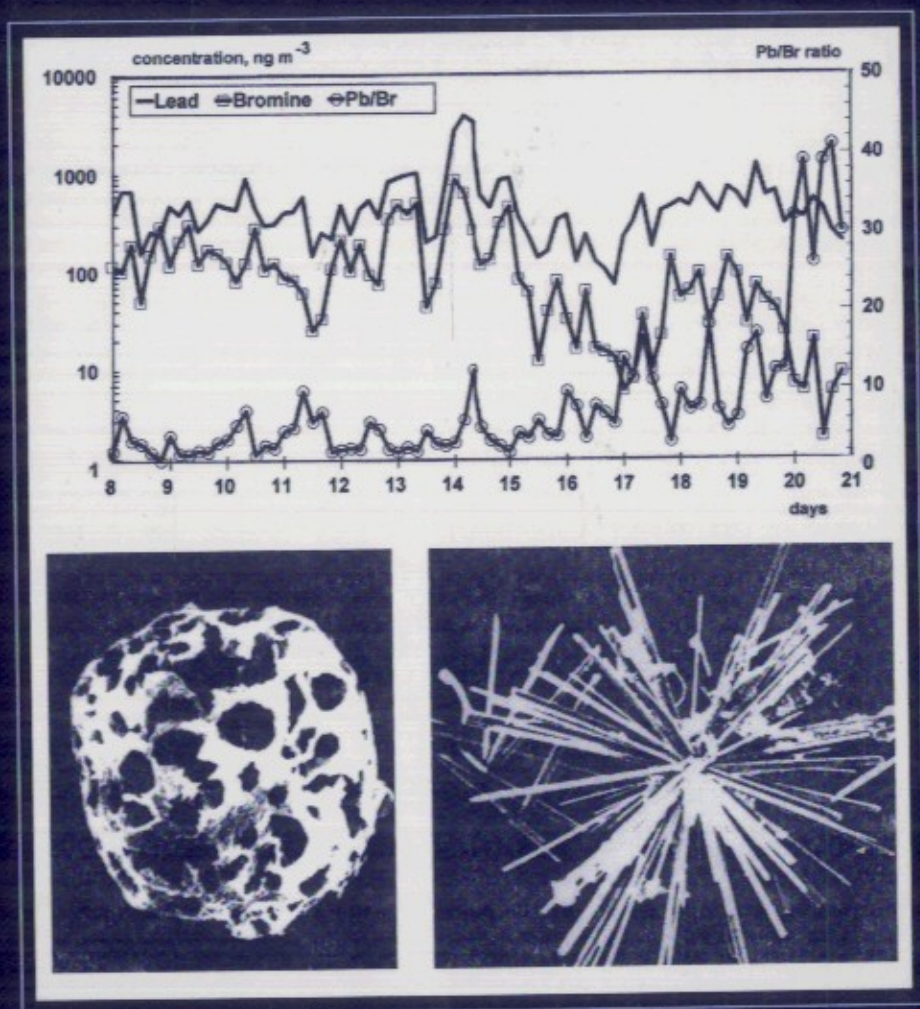


# AEROSOL CHEMICAL PROCESSES IN THE ENVIRONMENT



Edited by  
**Kvetoslav R. Spurny**

Special Editorial Consultant  
**Dieter Hochrainer**

# Table of Contents

## **PART I GENERAL ASPECTS**

<b>Chapter 1</b> Aerosol Chemistry and Its Environmental Effects .....	3
<i>Kvetoslav R. Spurny</i>	
<b>Chapter 2</b> Physical Chemistry of Aerosol Formation .....	23
<i>Markku Kulmala, Timo Vesala, and Ari Laaksonen</i>	
<b>Chapter 3</b> The Estimation of Time-Dependent (Relaxation) Processes Related to Condensation and Evaporation of Liquid Drops.....	47
<i>Mikhail V. Buikov</i>	
<b>Chapter 4</b> Phase Transformation and Growth of Hygroscopic Aerosols.....	61
<i>Ignatius N. Tang</i>	
<b>Chapter 5</b> On the Role of Aerosol Particles in the Phase Transition in the Atmosphere .....	81
<i>Jan Rosinski</i>	
<b>Chapter 6</b> Reversible Chemical Reactions in Aerosols .....	135
<i>Mark Z. Jacobson</i>	

## **PART II LABORATORY STUDIES**

<b>Chapter 7</b> LAMMA and Raman Study of Oxidation States of Chromium in Aerosols: Application to Industrial Hygiene .....	159
<i>A. Hachimi, E. Poitevin, G. Krier, and J.F. Muller</i>	
<b>Chapter 8</b> Chemical Characterization of Aerosol Particles by Laser Raman Spectroscopy.....	177
<i>K. Hang Fung and Ignatius N. Tang</i>	
<b>Chapter 9</b> Novel Applications of the Electrodynamic Levitator for the Study of Aerosol Chemical Processes .....	197
<i>Glenn O. Rubel</i>	
<b>Chapter 10</b> Radioactive Labeling in Experimental Aerosol Research.....	213
<i>Kvetoslav R. Spurny</i>	

## **PART III AEROSOL SYNTHETIC CHEMISTRY**

<b>Chapter 11</b> Synthesis and Online Characterization of Zirconia Powder Produced by Atomization ..... <i>Claude Landron</i>	249
--	-----

<b>Chapter 12</b> Recent Developments in the Structural Investigation of Aerosols by Synchrotron Radiation: Application to Ceramic Processing ..... <i>Claude Landron</i>	257
--	-----

<b>Chapter 13</b> Fundamentals and Performance of the MCVD Aerosol Process ..... <i>Vlastimil Matějec, Ivan Kašík, and Miroslav Chomát</i>	271
--	-----

## **PART IV AEROSOLS AND BUILDINGS**

<b>Chapter 14</b> Aerosol Particles Deposited on Building Stone ..... <i>Anders G. Nord</i>	297
---	-----

<b>Chapter 15</b> Effects of Aerosol on Modern and Ancient Building Materials ..... <i>Giuseppe Zappia</i>	309
--	-----

<b>Chapter 16</b> Aerosol and Stone Monuments ..... <i>Cristina Sabbioni</i>	327
--	-----

<b>Chapter 17</b> Calcium in the Urban Atmosphere ..... <i>Marco Del Monte and P. Rossi</i>	347
---	-----

<b>Chapter 18</b> Corrosion of Asbestos-Cement Building Materials by the Action of Atmospheric Acidic Aerosols and Precipitations ..... <i>Kvetoslav R. Spurný</i>	365
---	-----

## **PART V AEROSOLS IN THE ATMOSPHERE**

<b>Chapter 19</b> Characterization of Urban Aerosols in the Nagoya Area ..... <i>Satoshi Kadowaki</i>	379
---	-----

<b>Chapter 20</b> Analysis of Atmospheric Aerosols in Large Urban Areas with Particle-Induced X-ray Emission ..... <i>Javier Miranda</i>	405
---	-----

<b>Chapter 21</b> Chemical Characteristics and Temporal Variation of Size-Fractionated Urban Aerosols and Trace Gases in Budapest ..... <i>Imre Salma, Willy Maenhaut, Éva Zemplén-Papp, and János Bobvos</i>	415
--	-----

**Chapter 22**

Trace Elements in Atmospheric Pollution Processes: The Contribution of Neutron Activation Analysis .....	431
<i>Mario Gallorini</i>	

**Chapter 23**

Urban and Rural Organic Fine Aerosols: Components Source Reconciliation Using an Organic Geochemical Approach .....	457
<i>Alexandra Gogou and Euripides G. Stephanou</i>	

**Chapter 24**

Elimination of Diesel Soots Using Oxidation Catalysts .....	487
<i>Vincent Perrichon and P. Mériaudeau</i>	

**Chapter 25**

The Influence of Morphological Restructuring of Carbonaceous Aerosols on Microphysical Atmospheric Processes .....	505
<i>S. Nyeki and I. Colbeck</i>	

**Chapter 26**

Atmospheric Contamination by Fibrous Aerosols .....	525
<i>Kvetoslav R. Spurny</i>	

**Chapter 27**

Atmospheric Contamination by Agroaerosols .....	559
<i>Kvetoslav R. Spurny</i>	

**Chapter 28**

Transport and Chemistry of Pesticides in the Atmosphere .....	577
<i>Kai Bester and Heinrich Hühnerfuss</i>	

<b>Index</b> .....	601
--------------------	-----