Contents

Part I  Airborne Particulate Matter: Sources, Composition
and Concentration

A Comparative Review of PM Levels, Sources, and Their Likely
Fates in the Eastern Mediterranean Region ..................... 3
Najat A. Saliba and Rawad Massoud

Concentration and Source Origin of Trace Metals in PM$_{2.5}$ Collected
at Selected Canadian Sites within the Canadian National Air
Pollution Surveillance Program ............................... 19
Valbona Celo and Ewa Dabek-Zlotorzynska

Sources and Distributions of Polycyclic Aromatic Hydrocarbons
and Toxicity of Polluted Atmosphere Aerosols ................ 39
Gerhard Lammel, Jiří Novák, Linda Landlová, Alice Dvorská,
Jana Klánová, Pavel Čupr, Jiří Kohoutek, Eberhard Reimer
and Lenka Škrdlíková

Particulate Emissions from On-Road Vehicles .................. 63
Andreas Limbeck and Christoph Puls

The Atmospheric Concentrations of Pb, Mn, Cr, and Cd on the
Korean Peninsula Between 1991 and 2006 .................. 81
Kim Ki-Hyun, Nguyen Hang Thi and Ma Chang-Jin

Long-Distance Transport of Urban and Industrial Metals and Their
Incorporation into the Environment: Sources, Transport Pathways
and Historical Trends ........................................ 103
Samuel K. Marx and Hamish A. McGowan
## Part II Metals and Organic Compounds in Airborne Particulate Matter: Analytical Methods

### Trace Analysis of Persistent Organic Pollutants in the Air Using Accelerated Solvent Extraction
Rajasekhar Balasubramanian and Jun He

### Analytical Developments for Emerging Pollutants in Indoor Suspended Particulate Matter and Dust
C. Garcia-Jares, R. Barro, J. Regueiro, L. Sanchez-Prado and M. Llompart

### Application of Synchrotron X-ray Techniques for the Determination of Metal Speciation in (House) Dust Particles
Lachlan C. W. MacLean, Suzanne Beauchemin and Pat E. Rasmussen

### Ultra-Trace Analysis of Palladium: State-of-the-Art and Future Challenges
C. Puls, A. Limbeck and S. Hann

### Direct Determination of Metals in PM$_{10}$ Filters by Laser Ablation-ICP-MS
Sebastien Rauch, Gabriele Carugati and Ying Cao

### Chemical Composition of Subway Particles in Seoul, Korea, Determined Using Quantitative Single Particle Analysis
Hae-Jin Jung, Sunni Kang, Hye Kyeong Kim and Chul-Un Ro

### Analysis of Palladium Concentrations in Airborne Particulate Matter with Reductive Co-Precipitation, He Collision Gas and ID-ICP-Q-MS
H. Alsenz, F. Zereini, C. L. S. Wiseman and W. Püttmann

## Part III Airborne Particulate Matter: Environmental Pathways, Behaviour and Fate

### Fate and Transfer of Semivolatile Organic Compounds in a Multi-Compartment Environment
Rajasekhar Balasubramanian and Jun He

### Vertical Distribution of Airborne Particulate Matter in a Tropical Urban Environment: Changes in Physical and Chemical Characteristics
M. Kalaiarasan, R. Balasubramanian, K. W. D. Cheong and K. W. Tham

### Semi-volatile Organic Pollutants in the Gaseous and Particulate Phases in Urban Air
Hua Wei and An Li
Secondary Particle Production in Urban Areas .......................... 363
Boris Bonn

The Effect of Asian Dust on Urban Airborne PM in Japan ............ 371
Chang-Jin Ma

The Assessment of SO₂ Emitted into Atmosphere by the Pyrometallurgical Complex of Ghazaouet (NW, Algeria) ............ 387
B. Dahmani, F. Hadji and L. Benaabidate

Part IV  Bioavailability and Toxicology of Airborne Particulate Matter

Pd Particles as Standardized Test Material for Bioavailability Studies of Traffic Related Pd Emissions to Barley Plants ............. 399
Kerstin Leopold and Michael Schuster

The Role of Stable Free Radicals, Metals and PAHs of Airborne Particulate Matter in Mechanisms of Oxidative Stress and Carcinogenicity ......................................................... 411
Athanasios Valavanidis, Konstantinos Fiotakis and Thomie Vlachogianni

In vivo and In vitro Assessment of Particulate Matter Toxicology ... 427
Umme S. Akhtar, Jeremy A. Scott, Amanda Chu and Greg J. Evans

Part V  Airborne Particulate Matter Exposures and Health Risks

The Use of Snow, Soil and Lichens as Biomonitor of Contaminants in Airborne Particulate Matter in North-Eastern European Russia ......................................................... 453
Tony R. Walker

Biomonitoring of Toxic Compounds of Airborne Particulate Matter in Urban and Industrial Areas ......................................................... 467
Andreas Klumpp and Helge Ro-Poulsen

Exposure to Ultrafine Particles in Urban Centres ....................... 483
Kelly Sabaliauskas and Greg Evans

Occupational Exposure to Urban Airborne Particulate Matter:
A Review on Environmental Monitoring and Health Effects ....... 501
Ivo Iavicoli, Veruscka Leso, Luca Fontana and Antonio Bergamaschi

Health Risks of Urban Airborne Particles ................................. 527
Andreas D. Kappos
Urban Airborne Particulate Matter
Origin, Chemistry, Fate and Health Impacts
Zereini, F.; Wiseman, C.L.S. (Eds.)
2011, XXIII, 656 p., Hardcover
ISBN: 978-3-642-12277-4