Environmental Chemistry

Green Chemistry and Pollutants in Ecosystems

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1. Auflage 2004. Buch. xxvi, 780 S. Hardcover
ISBN 978 3 540 22860 8
Format (B x L): 15,5 x 23,5 cm
Gewicht: 2880 g

Preface

In 1889, the Nobel Prize winner Svante Arrhenius pointed out the existence of a "greenhouse effect" in which small changes in the concentration of carbon dioxide in the atmosphere could considerably alter the average temperature of a planet. About one century later, humans realise that most climate changes are correlated with the increase of the concentration of carbon dioxide in the atmosphere. A such prediction from Svante Arrhenius clearly highlights that more knowledge of environmental mechanisms is needed to cope with actual problems of pollution. Environmental Chemistry is a fast emerging discipline aiming at the understanding the fate of pollutants in ecosystems and at designing novel processes that are safe for ecosystems. Past pollution should be cleaned. Future pollution should be predicted and avoided.

The 69 chapters of this book have been arranged into seven topics that form the core of Environmental Chemistry: Analytical Chemistry, Toxic Metals, Organic Pollutants, Polycyclic Aromatic Hydrocarbons, Pesticides, Green Chemistry, and Ecotoxicology. Most chapters have designed to include *(1)* a review on the actual knowledge and *(2)* cutting-edge research results. Thus this book will be useful to students and decision-makers who wish to learn rapidly the essential background of a specific topic, and to scientists who wish to locate the actual frontiers of science in a specific domain.

We wish here to thank all authors for providing high quality manuscripts. We are indebted to Armin Stasch, Luisa Tonarelli and Marion Schneider from Springer for technical assistance. We thank Dr. Christian Witschel, Executive Editor of Geosciences at Springer for having accepted our project to design this book. Last but not least, we thank very much Brigitte Elbisser who has been from 2000 to 2003 the key staff of the European Association of Chemistry and the Environment (ACE), producing Newsletters, taking care of budget and memberships, organising annual meetings, and helping at the book preparation.

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