Air Pollution And Environmental Chemistry

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Environmental Chemistry - Colin Baird 2012-03-23

Handbook of Environmental Analysis - Pradyot Patnaik 2017-08-23
The Handbook will cover all aspects of environmental analysis and will examine the emergence of many new classes of pollutants in recent years. It will provide information on an array of topics from instrumentation, analytical techniques, and sample preparations to statistical calculations, chemical structures, and equations. It will present the tools and techniques required to measure a wide range of toxic pollutants in our environment. It will be fully revised throughout, and will add four new chapters (Microbial Analysis, Chlorophyll, Chlorine, Chloramines and Chlorine

Dioxide, and Derivatization Reactions in Environmental Analysis).

Air Pollution and Environmental Health - Pallavi Saxena 2020-06-08

Air pollution is an alarming problem, not only in terms of air quality, but also in relation to health issues. Toxic air pollutant concentrations produce harmful impacts on plant health and human health. Further, though there are various sources of air pollution, anthropogenic and biogenic sources are becoming increasingly problematic. A number of control methods have been applied to reduce the air pollutant concentrations so that their global environmental burden on plants as well as humans can be mitigated. However, as confirmed in numerous reports and studies, their concentrations continue to be very high and everyday cases related to air pollution have become exponentially high not only in developing countries but also in developed countries. In plants, toxic air quality has various adverse effects, including biochemical and physiological disorders, chronic diseases and/or lower yields. In humans, air pollutants affect the body's metabolism and immune system, lungs and central nervous system. This book provides an essential overview of air pollution, its impacts on plant and human health, and potential control strategies. The respective chapters cover general monitoring and characterization techniques for air pollutants, air quality modelling applications, plant and human health effects, risk assessment, and air pollution control policy. Given its scope, the book offers a valuable and unique resource for students of Environmental Science, Biological Science, Medical Science and Agriculture; and for environmental consultants, researchers and other professionals whose work involves air quality, plant and human related research.

The Handbook of Environmental Chemistry -

Volatile Organic Compounds in the Atmosphere - Ronald E. Hester 1995

Nineteen contributors from the environmental science field review issues concerning volatile organic compounds (VOCs) as air pollutants. The essays investigate VOC sources and distribution in the atmosphere; natural sources of VOC; the UK hydrocarbon monitoring network; control strategies; gas phase tropospheric chemistry of organic compounds; alternatives to CFCs and behavior in the atmosphere; VOCs in indoor air; and the development of UK policies in relation to VOCs. Annotation copyright by Book News, Inc., Portland, OR

Air Pollution 2013-10-03

An important purpose of The Handbook of Environmental Chemistry is to aid the understanding of distribution and chemical reaction processes which occur in the environment. Volume 4, Part B of this series is dedicated to Air Pollution Control Equipment, Materials Damage, Peroxyacyl Nitrates, Semivolatile Compounds in the Atmosphere, and Arctic Haze.

Textbook of Environmental Chemistry - Balram Pani 2007

Textbook of Environmental Chemistry has been designed to provide fundamental knowledge of the principles related to environment and its chemistry so as to meet the challenging requirements of students as well as teachers of Environmental Sciences, Environmental Chemistry and Environmental Studies at graduate, postgraduate, polytechnic, and engineering levels at all Indian Universities. This book is also useful for the students and professors of general science. The book explores biological resources and their relationship with physical and chemical aspects of the environment. Due emphasis has been given to the regional as well as global environmental problems like water, air, soil and noise pollution, their types and sources, effects on the ecosystem. Key Features " The book deals with principles and

chemical reactions that govern the behaviour of water, air and soil environement. " The book emphasizes on the origin of various pollutants and their control. " New and current fields of environmental science Green Chemistry, Environmental Biotechnology, Polymers for Environment. " It covers environmental impact, planning and laws to help readers understand how policies and plans are formulated to protect our environment. " Environmental pollution abatement engineering and technology has been discussed in-depth

ENVIRONMENTAL CHEMISTRY - SAMIR K. BANERJI 1999-01-01

This new edition provides a good exposure to the multidisciplinary nature of the subject and deals with various life supporting systems, their ecological aspects and effects on the sustenance of life, covering the bio-geochemical cycles in sufficient detail.Useful for courses taught in departments of science and environment, biotechnology and chemical engineering, the text presents an overview of important aspects of air and water pollution, especially the effects of industrial activities on pollution.Chapters seven and eight, which are new to this edition, discuss chemical toxicology, and waste management _ an area of great importance today.

Environmental Chemistry - John W. Moore 1976

Environmental Chemistry -

The Handbook of Environmental Chemistry - 1986

Air Pollution and Health - Ronald E. Hester 1998

The impact of air pollution on human health is currently of international concern. A comprehensive review of the subject is given in this volume, which complements the previous title covering air quality management. Dealing with the common gaseous and particulate air pollutants, including chemical carcinogens, it reviews the

epidemiological and exposure chamber study research as well as considering mechanistic studies in the case of particulate matter. Air Pollution and Health also addresses the practical issue of setting standards for human exposure to air pollution by including the philosophy of standard setting and a review of currently available standards, along with a description of the setting of USEPA revised standards for ozone and particulate matter. Current knowledge of indoor air pollution is also discussed. As with all other books in the series, this volume will be of inters tot the general public as well as being an important reference source for all those involved in the field, be it as students, industrialist, government agent, or health professional.

Environmental Chemistry and Toxicology - Berhanu Menasbo Tegagne 2012-04

Environmental Chemistry and Toxicology is an emergent course in Ethiopia. It has great role in mitigating solution for different environmental stresses. All human activities irrespective of the scope and severeness have an impact in soil, air, water and life of the receiving bodies. Thus, the main focus of this book is to study the fate of chemical pollutants in the environment. This book comprises five chapters such as, Introduction to Environmental Chemistry, Aquatic Chemistry and Water pollution, Atmospheric Chemistry and Air pollution, Soil Chemistry and Pollution and Environmental Toxicity and Toxicology. The overall goal of this book is to gain an understanding of the fundamental chemical processes that are central to a range of important Environmental problems and to utilize this knowledge in making critical evaluations of these problems.

Chemistry in the Marine Environment - Royal Society of Chemistry (Great Britain) 2000

The oceans cover more than 70% of the earth's surface to an average depth of almost 4000 metres. It is therefore not

surprising that exchanges that occur between ocean and atmosphere exert major influences on the global climate. In addition, there is great variety within the expanses of the ocean, including large temperature differences, and enormous biodiversity brought about by the great chemical diversity within the marine environment. Written by international experts in the field, Chemistry in the Marine Environment offers a multidisciplinary and authoritative review of this important topic. Included is a review of the opportunities and challenges in developing new pharmaceuticals from the sea and an examination of contamination and pollution in the marine environment, which is a cause of great concern world-wide. The international perspective of this book will engage the interest and attention of a wide readership, from chemical oceanographers to policymakers, from students in environmental science to those in oceanography programmes.

Chemistry of the Environment - Thomas G. Spiro 2003
Concise, comprehensive, readable, and current, Chemistry of the Environment, Second EDITION, is the most thorough, up-to-date, and user-friENDly treatment of environmental chemistry available. This book, designed for students who have taken or are taking general chemistry, explores and discusses topics such as energy flow through nature, the greenhouse effect, climate modeling, chemistry of the ozone layer, air pollution, redox potential and water pollution, toxic chemicals, and acid rain. Featuring an unsurpassed marriage of chemical principles with issues of environmental concern, this book is unrivaled in terms of its ability to explain the chemistry behind the headlines.

The Essential Guide to Environmental Chemistry - Georg Schwedt 2001-12-21
"This excellent and most reasonably priced guide is essential reading and a valuable reference source" (The ROSPA Occupational

Safety Health Jnl. March 2002) The Essential Guide to Environmental Chemistry outlines the problems and issues facing the environmental chemist throughout the ecosystem. Presented as a ?pocket-atlas?, this useful guide provides a concise overview of environmental pollution in air, water and soil as well as strategies for environmental analysis. Unique format with text and illustrations on facing pages Clear, full colour schematic diagrams making up 50% of the book A ?must-have? for undergraduates/graduates in this field

Principles of Environmental Chemistry - Roy M. Harrison 2007

Environmental chemistry is becoming increasingly important and is crucial in the understanding of a range of issues, ranging from climate change to local pollution problems. Principles of Environmental Chemistry draws upon sections of the authors' previous text (Understanding our Environment) and reflects the growing trend of a more sophisticated approach to teaching environmental science at university. This new, revised text book focuses on the chemistry involved in environmental problems. Written by leading experts in the field, the book provides an in depth introduction to the chemical processes influencing the atmosphere, freshwaters, salt waters and soils. Subsequent sections discuss the behaviour of organic chemicals in the environment and environmental transfer between compartments such as air, soil and water. Also included is a section on biogeochemical cycling, which is crucial in the understanding of the behaviour of chemicals in the environment. Complete with worked examples, the book is aimed at advanced undergraduate and graduate chemistry students studying environmental chemistry.

Understanding Our Environment - Roy M. Harrison 1999

This introductory text is aimed

at those having little background knowledge of the field. Developing a more international approach it emphasises links between atmosphere, water and earth.

Air Pollution - 2013-11-20

Environmental Chemistry is a relatively young science. Interest in this subject, however, is growing very rapidly and, although no agreement has been reached as yet about the exact content and limits of this interdisciplinary discipline, there appears to be increasing interest in seeing environmental topics which are based on chemistry embodied in this subject. One of the first objectives of Environmental Chemistry must be the study of the environment and of natural chemical processes which occur in the environment. A major purpose of this series on Environmental Chemistry, therefore, is to present a reasonably uniform view of various aspects of the chemistry of the environment and chemical reactions occurring in the environment. The industrial activities of man have given a new dimension to Environmental Chemistry. We have now synthesized and described over five million chemical compounds and chemical industry produces about hundred and fifty million tons of synthetic chemicals annually. We ship billions of tons of oil per year and through mining operations and other geophysical modifications, large quantities of inorganic and organic materials are released from their natural deposits. Cities and metropolitan areas of up to 15 million inhabitants produce large quantities of waste in relatively small and confined areas. Much of the chemical products and waste products of modern society are released into the environment either during production, storage, transport, use or ultimate disposal. These released materials participate in natural cycles and reactions and frequently lead to interference and disturbance of natural systems.

Principles of Environmental

Chemistry - James Girard 2010
Planet Earth : rocks, life, and history -- The Earth's atmosphere -- Global warming and climate change -- Chemistry of the troposphere -- Chemistry of the stratosphere -- Analysis of air and air pollutants -- Water resources -- Water pollution and water treatment -- Analysis of water and wastewater -- Fossil fuels : our major source of energy -- Nuclear power -- Energy sources for the future -- Inorganic metals in the environment -- Organic chemicals in the environment -- Insecticides, herbicides, and insect control -- Toxicology -- Asbestos -- The disposal of dangerous wastes.

Beyond the Molecular Frontier - National Research Council 2003-03-19
Chemistry and chemical engineering have changed significantly in the last decade. They have broadened their scopeâ€"into biology, nanotechnology, materials science, computation, and advanced methods of process systems engineering and controlâ€"so much that the programs in most chemistry and chemical engineering departments now barely resemble the classical notion of chemistry. Beyond the Molecular Frontier brings together research, discovery, and invention across the entire spectrum of the chemical sciencesâ€"from fundamental, molecular-level chemistry to large-scale chemical processing technology. This reflects the way the field has evolved, the synergy at universities between research and education in chemistry and chemical engineering, and the way chemists and chemical engineers work together in industry. The astonishing developments in science and engineering during the 20th century have made it possible to dream of new goals that might previously have been considered unthinkable. This book identifies the key opportunities and challenges for the chemical sciences, from basic research to societal needs and from terrorism defense to environmental

protection, and it looks at the ways in which chemists and chemical engineers can work together to contribute to an improved future.

The Handbook of environmental chemistry - 1986

Air Composition and Chemistry - Peter Brimblecombe 1996

This revised and updated study is about the atmosphere and humanity's influence on it. Following an analysis of the natural environment, it re-examines the sources of air pollution and its effects, including decline in health, damage to plants and animals, indoor pollution, and acid rain.

Fundamentals of Environmental and Toxicological Chemistry Stanley E. Manahan 2013-02-25

Fundamentals of Environmental and Toxicological Chemistry: Sustainable Science, Fourth Edition covers university-level environmental chemistry, with toxicological chemistry integrated throughout the book. This new edition of a bestseller provides an updated text with an increased emphasis on sustainability and green chemistry. It is organized based on the five spheres of Earth's environment: (1) the hydrosphere (water), (2) the atmosphere (air), (3) the geosphere (solid Earth), (4) the biosphere (life), and (5) the anthrosphere (the part of the environment made and used by humans). The first chapter defines environmental chemistry and each of the five environmental spheres. The second chapter presents the basics of toxicological chemistry and its relationship to environmental chemistry. Subsequent chapters are grouped by sphere, beginning with the hydrosphere and its environmental chemistry, water pollution, sustainability, and water as nature's most renewable resource. Chapters then describe the atmosphere, its structure and importance for protecting life on Earth, air pollutants, and the

sustainability of atmospheric quality. The author explains the nature of the geosphere and discusses soil for growing food as well as geosphere sustainability. He also describes the biosphere and its sustainability. The final sphere described is the anthrosphere. The text explains human influence on the environment, including climate, pollution in and by the anthrosphere, and means of sustaining this sphere. It also discusses renewable, nonpolluting energy and introduces workplace monitoring. For readers needing additional basic chemistry background, the book includes two chapters on general chemistry and organic chemistry. This updated edition includes three new chapters, new examples and figures, and many new homework problems.

Air Quality in Urban Environments - Royal Society of Chemistry (Great Britain) 2009

This comprehensive volume deals with the basic science of urban air pollution in relation to the sources and concentrations, and the atmospheric chemical and physical processes which determine those concentrations and lead to the formation of secondary pollutants by chemical reactions in the atmosphere--

Environmental Pollutant Exposures and Public Health - R M Harrison 2020-10-27

Both genes and environment have profound effects upon our health. While some environmental factors such as polluted air are high in the public consciousness, there are many other pathways for people’s exposure to toxic chemicals, such as through food, water and contaminated land. It is not only chemicals that can affect health; environmental radioactivity, pathogenic organisms and our changing climate also have implications for public health, and all contribute to the global burden of disease, leading to both disability and deaths of millions of people annually across the world. An

understanding of the pathways of environmental exposure, and its effects upon health is key to developing regulations and behaviours that reduce or prevent exposure, and the consequent impacts upon health. Covering topics from dietary exposure to chemicals through to the health effects of climate change, this book brings together contributors from around the world to highlight the latest science on the impacts of environmental pollutant exposure upon public health.

Indoor Air Pollution - R M Harrison 2019-08-05

Time-activity diaries kept by members of the general public indicate that on average people spend around 90% of their time indoors, this is associated with considerable exposure to air pollutants. Given its importance as a source of air pollution exposure, increasing attention is being given to pollution of the indoor environment. This volume will consider both chemical and biological pollutants in the indoor atmosphere from their sources to chemical and physical transformations, human exposure and potential effects on human health.

Environmental Chemistry Howard Stephen Stoker 1975

Intercontinental Transport of Air Pollution - Andreas Stohl 2013-11-20

Transboundary transport of air pollution has been a topic of scientific research for several decades and has also been addressed already by environmental policies. However, the importance of air pollution transport on the largest - intercontinental - scales, has been recognized only recently. It was soon found that the meteorological and chemical processes involved in intercontinental pollution transport are distinctly different from those occurring during regional-scale transport, and thus new scientific methodologies are required for their study. In this book, leading scientists review the current state of knowledge in this emerging field of research, providing the reader

with a process understanding of global-scale transport and its influence on the atmosphere's chemical composition. Long-range transport of anthropogenic pollution is contrasted with that of pollution produced by natural processes such as dust storms or forest fires. Furthermore, the prospects for international management of intercontinental transport of anthropogenic pollution are discussed.

Chemistry for Environmental and Earth Sciences - Catherine Vanessa Anne Duke 2007-10-01

Tackling environmental issues such as global warming, ozone depletion, acid rain, water pollution, and soil contamination requires an understanding of the underlying science and chemistry of these processes in real-world systems and situations. Chemistry for Environmental and Earth Sciences provides a student-friendly introduction to the basic chemistry used for the mitigation, remediation, and elimination of pollutants. Written and organized in a style that is accessible to science as well as non-science majors, this textbook divides its content into four intuitive chapters: Fire, Earth, Water, and Air. The first chapter explains classical concepts in chemistry that occur in nature such as atomic and molecular structures, chemical bonding and reactions, states of matter, phase transitions, and radioactivity. Subsequent chapters focus on the chemistry relating to the geosphere, hydrosphere, and atmosphere—including the chemical aspects of soil, water, and air pollution, respectively. Chemistry for Environmental and Earth Sciences uses worked examples and case studies drawn from current applications along with clear diagrams and concise explanations to illustrate the relevance of chemistry to geosciences. In-text and end-of-chapter questions with complete solutions also help students gain confidence in applying concepts from this book towards solving current,

real-world problems.
The Handbook of Environmental Chemistry - 1991

Environmental Chemistry in Society - James M. Beard 2016-04-19
Everyone can benefit from having some understanding of environmental science and the chemistry underlying issues such as global warming, ozone depletion, energy sources, air pollution, water pollution, and waste disposal. Environmental Chemistry in Society, Second Edition presents environmental science to the non-science student, specifically focus

Indoor Air Pollution - Peter Pluschke 2018-01-24
This second edition offers a comprehensive overview of the priority indoor air pollutants, such as volatile organic compounds, indoor particles and fibres, combustion products and other chemical agents that may affect health. It includes updated reviews with a focus on emission processes and on the large variety of volatile organic pollutants. It also introduces new topics, such as reflections on the shift in human health from infection-related diseases to chronic illnesses and the significance of indoor chemical exposure. The authors provide insights into different cultural settings and their consequences for indoor air quality. Further, the book briefly discusses building certification as a market-oriented tool to improve energy efficiency and indoor air quality in the building sector. It appeals to public health specialists; scientists; graduate students in the field of environmental sciences; decision makers in government, regulatory bodies and the construction industry; and facility managers.

Chemistry of the Environment - David E. Newton 2009
Discusses current research and advances in the field of environmental chemistry, including atmospheric chemistry, the chemistry of water pollution, and green chemistry.

Chemistry and Ecotoxicology of Pollution Des W. Connell 1984-03-20

Pollution and its control are now one of the most serious problems in environmental management, affecting localized areas, regions, and, increasingly, the entire ecosphere. Chemistry and Ecotoxicology of Pollution provides a basic understanding of the chemical, toxicological, and ecological factors involved when major classes of pollutants act on natural systems. The nature and effects of these pollutants are examined from the primary level of their sources and chemical properties, through their interactions in the environment, to their ultimate ecological effects on organisms and ecosystems. Pollutants are divided into groups, with similar properties, and then the chemistry and ecotoxicology of each group is defined. More importantly, in collating and evaluating available information on pollution processes, the book develops unifying theories on the fundamental chemical and ecological nature of pollution processes. The book uses a conceptual framework to evaluate the impact of pollutants on the components and functions of natural ecosystems. It is based on the chemical and physical properties of a pollutant, its environmental behavior and fate, exposure to and toxic effects on organisms, their populations, communities, and responses of affected ecosystems. This sequence can be applied to known, potential, and emerging pollutants of concern. As government initiatives for the control of chemicals take greater effects, pollution research, particularly in ecotoxicology, will be further developed. Chemistry and Ecotoxicology of Pollution helps play an important role in determining the future direction of research activities in environmental management and pollution control on a worldwide scale. It is a basic resource for students (e.g. environmental chemistry, ecology, land and water

management, environmental or public health, environmental engineering, and sustainability science), scientists, researchers, policy makers, and professionals in need of a clear understanding of the nature and effects of environmental pollution from an ecological perspective.

Reactions and Processes - 1988-07-19

Environmental Chemistry for a Sustainable World - Eric Lichtfouse 2014-01-28 Environmental chemistry is a fast developing science aimed at deciphering fundamental mechanisms ruling the behaviour of pollutants in ecosystems. Applying this knowledge to current environmental issues leads to the remediation of environmental media, and to new, low energy, low emission, sustainable processes. Chapters review analysis and remediation of pollutants such as greenhouse gases, chiral pharmaceuticals, dyes, chlorinated organics, arsenic, toxic metals and pathogen in air, water, plant and soil. Several highlights include the overlooked impact of air pollutants from buildings for health risk, innovative remediation techniques such as bioreactors for gas treatment, electrochemical cleaning of pharmaceuticals, sequestration on Fe-Mn nodules, phytoremediation and photocatalytical inactivation of microbial pathogens. This book will be a valuable source of information for engineers and students developing novel applied techniques to monitor and clean pollutants in air, wastewater, soils and sediments.

Key Concepts in Environmental Chemistry - Grady Hanrahan I 2011-08-02 Key Concepts in Environmental Chemistry provides a modern and concise introduction to environmental chemistry principles and the dynamic nature of environmental systems. It offers an intense, one-semester examination of selected concepts encountered in this field of study and provides integrated tools in

explaining complex chemical problems of environmental importance. Principles typically covered in more comprehensive textbooks are well integrated into general chapter topics and application areas. The goal of this textbook is to provide students with a valuable resource for learning the basic concepts of environmental chemistry from an easy to follow, condensed, application and inquiry-based perspective. Additional statistical, sampling, modeling and data analysis concepts and exercises will be introduced for greater understanding of the underlying processes of complex environmental systems and fundamental chemical principles. Each chapter will have problem-oriented exercises (with examples throughout the body of the chapter) that stress the important concepts covered and research applications/case studies from experts in the field. Research applications will be directly tied to theoretical concepts covered in the chapter. Overall, this text provides a condensed and integrated tool for student learning and covers key concepts in the rapidly developing field of environmental chemistry. Intense, one-semester approach to learning Application-based approach to learning theoretical concepts In depth analysis of field-based and in situ analytical techniques Introduction to environmental modeling

Environmental Chemistry - Stanley E Manahan 2017-02-24 With clear explanations, real-world examples and updated questions and answers, the tenth edition of Environmental Chemistry emphasizes the concepts essential to the practice of environmental science, technology and chemistry while introducing the newest innovations in the field. The author follows the general format and organization popular in preceding editions, including an approach based upon the five environmental spheres and the relationship of environmental chemistry to the

key concepts of sustainability, industrial ecology and green chemistry. This readily adaptable text has been revamped to emphasize important topics such as the world water crisis. It details global climate change to a greater degree than previous editions, underlining the importance of abundant renewable energy in minimizing human influences on climate. Environmental Chemistry is designed for a wide range of graduate and undergraduate courses in environmental chemistry, environmental science and sustainability as well as serving as a general reference work for professionals in the environmental sciences and engineering.

The Handbook of Environmental Chemistry - 1985