

A Textbook Of Environmental Chemistry And Pollution Control

Guiding us through the chemical composition of the three key environmental systems--the atmosphere, hydrosphere, and terrestrial environment--the authors explain the chemical processes which occur within and between each system. Focusing on general principles, we are introduced to the essential chemical concepts which underpin an understanding of the air, water, and soil and how they behave; careful explanations ensure that clarity is not sacrificed at the expense of thorough coverage of the underlying chemistry. We then see how human activity continues to affect the chemical behavior of these environmental systems, and what the consequences of these natural processes being disturbed can be. Environmental Chemistry: A Global Perspective takes chemistry out of the laboratory and shows us its importance in the world around us. With illuminating examples from around the globe, its rich pedagogy, and broad, carefully structured coverage, this book is the perfect resource for any environmental chemistry student wishing to develop a thorough understanding of their subject. Supplementary Resources @Companion website featuring downloadable illustrations
-Solutions manual

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The field of environmental chemistry has evolved significantly since the publication of the first edition of Environmental Chemistry. Throughout the book's long life, it has chronicled emerging issues such as organochloride pesticides, detergent phosphates, stratospheric ozone depletion, the banning of chlorofluorocarbons, and greenhouse warming. During this time the first Nobel Prize for environmental chemistry was awarded. Written by environmental chemist Stanley Manahan, each edition has reflected the field's shift of emphasis from pollution and its effects to its current emphasis on sustainability. What makes this book so enduring? Completely revised, this ninth edition retains the organizational structure that has made past editions so popular with students and professors while updating coverage of principles, tools, and techniques to provide fundamental understanding of environmental chemistry and its applications. It includes end-of chapter questions and problems, and a solutions manual is available upon qualifying course adoptions. Rather than immediately discussing specific environmental problems, Manahan systematically develops the concept of environmental chemistry so that when he covers specific pollutions problems the background necessary to understand the problem has already been developed. New in the Ninth Edition: revised discussion of sustainability and environmental

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science updates information on chemical fate and transport, cycles of matter examination of the connection between environmental chemistry and green chemistry coverage of transgenic crops the role of energy in sustainability potential use of toxic substances in terrorist attacks Manahan emphasizes the importance of the anthrosphere – that part of the environment made and operated by humans and their technologies. Acknowledging technology will be used to support humankind on the planet, it is important that the anthrosphere be designed and operated in a manner that is compatible with sustainability and that it interacts constructively with the other environmental spheres. With clear explanations, real-world examples, and updated questions and answers, the book emphasizes the concepts essential to the practice of environmental science, technology, and chemistry while introducing the newest innovations in the field. Readily adapted for classroom use, a solutions manual is available with qualifying course adoption.

Many controversial issues revolve around complex scientific arguments which can be better understood with at least a minimal knowledge and understanding of the chemical reactions and processes going on in the world around us. This textbook offers an accessible introduction to chemical principles and concepts, and applies them to relevant environmental situations and issues. Written for

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students who have not taken A' level chemistry, this book bridges the gap between GCSE chemistry and first year undergraduate level.

Plastic has become a ubiquitous part of modern life. A cheap, lightweight material, it is used in everything from food packaging to consumer electronics and microbeads in cosmetic products. However, we are becoming increasingly aware of the problems our reliance on plastic is causing in the environment. For example, recent campaigns have highlighted the build-up of microbeads in the marine environment and the damage this is doing to wildlife, and the problem of marine litter, often in very remote locations. There are also concerns over exposure to plasticisers and their possible consequences for health. The plastics industry is under increasing pressure, not only from the government and environmental groups, but also from consumers, to improve the environmental impact of their products. This book presents an introduction to the uses of plastics and an overview of how they interact with the environment. It is a valuable resource for students studying environmental science as well as researchers working in the plastics industry, and policy makers and regulators concerned with waste disposal and environmental planning and conservation.

The Progress and Prosperity of any country mainly depend upon the quality of its human resource, which

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in turn, depends upon the quality of its educational system. Higher and technical education, being at the apex of the pyramid of education, play a major role in the overall development of any country. One of the major drawbacks of the higher and technical education in our country, is the palpable gap between the world of learning and the world of work.

At present environmental chemistry is becoming an increasingly popular subject in both under graduate and graduated education in the whole World and especially in all Asian countries. Different courses in ecology, chemistry, environmental science, public health, geography, biology, and environmental engineering all include this subject in their curriculum. Many textbooks have appeared in recent years aiming to fulfill these requirements; however, most of these books operate mainly with examples from developed countries of Europe, USA and Canada. Taking into account the geographic boundaries of environmental pollution that is especially pronounced in Asia and the specific peculiarities of pollution in developing countries, this textbook is supposed to close the gap by providing regionally oriented knowledge in basic and applied environmental chemistry.

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,

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including decline in health, damage to plants and animals, indoor pollution, and acid rain.

This book presents chemical analyses of our most pressing waste, pollution, and resource problems for the undergraduate or graduate student. The distinctive holistic approach provides both a solid ground in theory, as well as a laboratory manual detailing introductory and advanced experimental applications. The laboratory procedures are presented at microscale conditions, for minimum waste and maximum economy. This work fulfills an urgent need for an introductory text in environmental chemistry combining theory and practice, and is a valuable tool for preparing the next generation of environmental scientists.

There is no need in the 1970s to explain the writing of a book on "Environmental Chemistry." The despoliation of the environment by man's activities has long been clear to chemists. However, it has been the subject of public debate for a short time—since the late 1960s. Curiously, there has been little reaction in the textbook literature to reflect this concern. Apart from some brief and sketchy paperbacks for schools, there has not yet been published a substantial review of environmental chemistry. One reason for this is the breadth of the chemistry involved: it could scarcely be covered by one or two authors, for it is as wide as chemistry itself. The ideal way to write such a book would be to

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gather a couple of dozen authors in one place and keep them together for 6 months of discussions and writing. This not being very practical, it was decided to do the next best thing and to attempt to network a number of men together in mutual correspondence and interaction, which would lead to a book that had the advantages of the expertise of a large number of persons, and lacked many of the usual disadvantages of the multi author book. Thus, synopses of the various articles were sent to each author, and they were encouraged to interact with each other in attempting to avoid repetition and in keeping their symbols uniform and their presentation style coordinated.

New edition of an undergraduate textbook introduces the basic chemical concepts underlying environmental science.

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

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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 environment. * 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

Textbook of Environmental Chemistryl. K. International Pvt Ltd

The first book of its kind, Environmental Electrochemistry considers the role that electrochemical science and engineering can play in environmental remediation, pollution targeting, and pollutant recycling.

Electrochemical-based sensors and abatement technologies for the detection, quantification, and treatment of environmental pollutants are described.

Each chapter includes an extensive listing of supplemental readings, with illustrations throughout the book to clarify principles and approaches detailed in the

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text. The first book to review electro- and photoelectrochemical technologies for environmental remediation, pollution sensors and pollutant recycling Applicable to a broad audience of environmental scientists and practicing electrochemists Includes both laboratory concepts and practical applications This guide to environmental chemistry covers major topical issues, including the greenhouse effect, the ozone layer, pesticides, and air and water pollution. The text offers an active problem-solving approach, with exercises incorporated throughout each chapter. Chemical processes shape the world we live in; the air we breathe, the water we drink, the weather we experience. Environmental Chemistry: a global perspective describes those chemical principles which underpin the natural processes occurring within and between the air, water, and soil, and explores how human activities impact on these processes, giving rise to environmental issues of global concern. Guiding us through the chemical composition of the three key environmental systems - the atmosphere, hydrosphere, and terrestrial environment - the authors explain the chemical processes which occur within and between each system. Focusing on general principles, we are introduced to the essential chemical concepts which allow better understanding of air, water, and soil and how they behave; careful explanations ensure that clarity is not sacrificed at the expense of thorough coverage of the underlying chemistry. We then see how human activity continues to affect the chemical behaviour of these environmental systems, and what the consequences of

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these natural processes being disturbed can be.

Environmental Chemistry: a global perspective takes chemistry out of the laboratory, and shows us its importance in the world around us. With illuminating examples from around the globe, its rich pedagogy, and broad, carefully structured coverage, this book is the perfect resource for any environmental chemistry student wishing to develop a thorough understanding of their subject.

Discusses current research and advances in the field of environmental chemistry, including atmospheric chemistry, the chemistry of water pollution, and green chemistry.

This book presents chemical analyses of the most pressing waste, pollution, and resource problems for the undergraduate or graduate student. Its distinctive holistic approach provides a solid introduction to theory as well as a practical laboratory manual detailing beginning and advanced experimental applications. It presents laboratory procedures at microscale conditions, for minimum waste and maximum economy.

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

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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 is the scientific study of the chemical and biochemical phenomena that occur in natural places. It should not be confused with green chemistry, which seeks to reduce potential pollution at its source. It can be defined as the study of the sources, reactions, transport, effects, and fates of chemical species in the air, soil, and water environments; and the effect of human activity on these. Environmental chemistry is an interdisciplinary science that includes atmospheric, aquatic and soil chemistry, as well as heavily relying on analytical chemistry and being related to environmental and other areas of science.

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This book addresses key topics related to the broad subject of Environmental Chemistry . The book tries to present the topics that are essential to understand the chemical process in our environment involving air,, water, and soil. Chapters that are very

The study of the biochemical and chemical phenomena that occur in natural places falls under the domain of environmental chemistry. It studies the sources, reactions, effects and transport of chemical species in diverse environments such as soil, air and water. It involves a better understanding of how the uncontaminated environment works. It also includes the study of chemicals in concentrations that are present naturally. It is an interdisciplinary field of science, which includes various branches of chemistry such as aquatic, soil and atmospheric chemistry. It also uses principles from analytical chemistry. Environmental chemistry observes the chemical processes occurring in the environment that are affected by human activities and causes various environmental changes. This textbook presents the complex subject of environmental chemistry in the most comprehensible and easy to understand language. Some of the diverse topics covered in this textbook address the varied branches that fall under this category. Those in search of information to further their knowledge will be greatly assisted by this book.

As the author states in his Preface, this book is written at a time when scientific and lay communities recognize that knowledge of environmental chemistry is fundamental in understanding and predicting the fate of pollutants in soils and waters, and in making sound decisions about remediation of contaminated soils. Environmental Soil Chemistry presents the fundamental concepts of soil science and applies them to environmentally significant reactions in soil. Clearly and concisely written for undergraduate and

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beginning graduate students of soil science, the book is likewise accessible to all students and professionals of environmental engineering and science. Chapters cover background information useful to students new to the discipline, including the chemistry of inorganic and organic soil components, soil acidity and salinity, and ion exchange and redox phenomena. However, discussion also extends to sorption/desorption, oxidation-reduction of metals and organic chemicals, rates of pollutant reactions as well as technologies for remediating contaminated soils. Supplementary reading lists, sample problems, and extensive tables and figures make this textbook accessible to readers. Key Features *

- * Provides students with both sound contemporary training in the basics of soil chemistry and applications to real-world environmental concerns
- * Timely and comprehensive discussion of important concepts including: *
- * Sorption/desorption
- * Oxidation-reduction of metals and organics
- * Effects of acidic deposition and salinity on contaminant reactions
- * Boxed sections focus on sample problems and explanations of key terms and parameters
- * Extensive tables on elemental composition of soils, rocks and sediments, pesticide classes, inorganic minerals, and methods of decontaminating soils
- * Clearly written for all students and professionals in environmental science and environmental engineering as well as soil science

The environment is an invaluable resource, and understanding its chemistry is essential to the continued sustainability of life on earth. Environmental science, which builds on the foundation of chemistry, seeks to remedy the present deterioration and degradation caused by humans, and to create new technology that will prevent further damage. This book deals comprehensively with the five essential global cycles or envirospheres — lithosphere (minerals and energy sources), atmosphere (air),

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hydrosphere (water), pedosphere (soil), and biosphere (life) — and provides a clear overview of the crucial interaction away them. It covers the chemistry of energy resources and aspects of biochemistry, geochemistry, and toxicological chemistry, in addition to the three important areas of air, water, and soil; in the process, it links chemical principles with environmental issues. With the fundamental principles presented clearly and the topics covered in a logical sequence, this book can be used as a textbook of environmental chemistry for the environmental engineering or environmental science major. It can also be used as a reference book for environmental professionals./a

Environmental Chemistry Is A Recent Branch Of Study, Introduced As Paper At Undergraduate As Well As Post Graduate Level In Many Universities. But There Are Very Few Works By Indian Writers On This Subject. The Present Book Is An Attempt In This Direction. Each Topic Covered In This Book Is Self-Sufficient In Itself And Is Well Explained With The Help Of Suitable Figures. An Attempt Has Been Made To Describe Each Topic In The Light Of Latest Developments In The Field In A Simple Language And Elegant Style.

Comprehensive introductory textbook for students and specialists in ecology, environmental science, and chemistry.

This textbook presents the chemistry of the environment using the full strength of physical, inorganic and organic chemistry, in addition to the necessary mathematics and physics. It provides a broad yet thorough description of the environment and the environmental impact of human activity using scientific principles. It gives an accessible account while paying attention to the fundamental basis of the science, showing derivations of formulas and giving primary references and historical insight. The

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authors make consistent use of professionally accepted nomenclature (IUPAC and SI), allowing transparent access to the material by students and scientists from other fields. This textbook has been developed through many years of feedback from students and colleagues. It includes more than 400 online student exercises that have been class tested and refined. The book will be invaluable in environmental chemistry courses for advanced undergraduate and graduate students and professionals in chemistry and allied fields.

Introduces environmental chemistry, covering such topics as global warming, air pollution, and wastewater analysis.

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