

Book review

Fundamentals of Environmental Chemistry. Stanley E. Manahan, Lewis, Boca Raton, 1993. xv + 844 pp. Price £24.95. ISBN 0-87371-587-X.

The continuing interest and concern about the uses—and particularly the misuses—of chemistry as it relates to the environment has led everyone to need to have some knowledge of environmental chemistry. As a branch of chemistry, environmental chemistry deals with the origins, transport, reaction, effects and fates of chemical species in water, air, and terrestrial and living environment. It is obvious that if one wants to know some environmental chemistry, one must know something of organic chemistry, inorganic chemistry, analytical chemistry, physical chemistry, photochemistry, geochemistry and biological chemistry. Unfortunately, most of the existing books about environmental chemistry are detailed textbooks written for honours chemistry students, but relatively few fit the needs of readers having little or no background in chemistry.

Fundamentals of Environmental Chemistry provides the basic knowledge of chemistry within a framework of environmental science. It consists of 22 chapters. Chapter 1 provides a highly condensed, simplified but meaningful overview of chemistry to give the reader the essential concepts and terms needed to really begin to understand chemistry. The following three chapters deal with the properties of matter, the concepts of atoms, elements, molecules, compounds and the nature of chemical bonds. As noted in the book, chemistry is a language. Success in the study of chemistry depends on how well chemical language is learned. The last of the most basic parts of chemical language, that is chemical reactions, equations and stoichiometry, are discussed in

Chapter 5. Chapters 6–8 constitute the remainder of material that is usually regarded as essential in general chemistry. The most fundamental points of organic chemistry and biochemistry, including organic formulas, structures, names, major cell features, biomolecules and basic biochemical processes are provided in Chapters 9 and 10. Chapters 11–18 cover the core of environmental chemistry, that is the environmental chemistry of water, soil and air which are the main parts of surroundings of life on earth. They are the media upon which all terrestrial organisms depend for their existence. As toxicological chemistry and environmental chemistry are intimately related, Chapters 19 and 20 provide readers with basic knowledge of the nature, sources, treatment and disposal of hazardous substances or wastes. Using toxicological chemistry as the basis, the occupational health and human exposure to pollutants and toxicants are discussed in Chapter 21. The last but not the least chapter discusses the major aspects of natural resources and energy resources as they relate to environmental chemistry.

It seems unnecessary to rediscuss the basic knowledge of biomolecules and cells in Chapter 21 as it has been dealt with in more detail in Chapter 10. Nevertheless, this book is an excellent introduction to the world of chemistry and environmental chemistry. It is well organised and relatively free of errors. We are happy to recommend it as a very useful and wide-ranging general reference and textbook for a broad spectrum of applications.

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