

Book reviews

CRC Handbook of Data on Organic Compounds, 3rd edition—(HODOC III). Edited by D.R. Lide and G.W.A. Milne, CRC Press, Boca Raton, Florida, 1993. 7 Volumes, 7000 pp. Price £1875.00. ISBN 0-8493-0445-8.

The abundance of different chemicals at the disposal of the organic chemist results in the need for easy access to reliable physical, chemical and spectral data. The third edition of this set of books provides a master reference of some 27,580 organic compounds which are thoroughly indexed to facilitate effective identification. Volumes include the most frequently used chemical, physical and spectral data, newly added reference fields, more complete information on density, melting points and boiling points, updated Beilstein reference numbers, improved indexes, are just some of the new features and improvements included in this edition.

Compounds are listed in alphabetical order to enable quick location of a particular compound (Vols I–V). The indexes enable you to identify a compound from one or more known properties: synonyms, 200,000 substance names (Vol. VII); molecular formulas, all compounds corresponding to a specific molecular formula are listed by primary name (Vol. VI); CAS Registry Number, facilities entering HODOC III from other sources (Vol. VI).

Molecular weight is calculated according to 'International Atomic Weight Values'. Mass/charge is computed from the most abundant isotopes for use in mass spectroscopy. Refractive index may specify the temperature at which measurement was made. Pressure is indicated for melting and boiling points when standard conditions are not the case. Spectra (mass, IR, UV, Raman, NMR) are taken from major collections (e.g. Sadtler, Coblentz, NIST EPA-NIH). The source of each spectrum is also provided. All data on a single compound are located together, eliminating the need to turn from one section to another.

The objective of this series is to strike a middle ground between the concise tables that appear in many one-volume handbooks and the very large databases that aim for totally comprehensive coverage. Some selectivity has, therefore, been implemented with emphasis placed on the chemicals of highest practical interest out of the very large universe of organic chemicals.

Overall this series of seven volumes is an excellent tool for information retrieval. The only criticism is that a number of the chemical structures displayed are ridi-

culously small in relation to the space available, there is no standard diagrammatic scale. The cost of such a reference work is inevitably high, however, it is worthwhile if it is somewhat comprehensive in coverage. This set of books is an important addition to any good chemical reference library.

Charles J. Knill
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Free Radicals in Biology and Medicine, 2nd edition. B. Halliwell and J.M.C. Gutteridge, Clarendon Press, Oxford, 1993. xvi + 543 pp. ISBN 0-19-855291-2.

A free radical is any species capable of independent existence that contains one or more unpaired electrons. Radicals can be formed by the loss of a single electron from a non-radical, or by the gain of a single electron by a non-radical. The presence of unpaired electrons causes species to be attracted slightly to a magnetic field (i.e. to be paramagnetic), and sometimes makes the species highly reactive. The importance of radical reaction in radiation damage, food preservation, combustion and in rubber and paint industries is well known. However, it was only recently, with the discovery of the importance of radical reactions in normal body chemistry and in the mode of action of many toxins, that biologists and clinicians have raised interest in the subject.

The second edition of '*Free Radicals in Biology and Medicine*' is a comprehensive description of the chemistry of free radicals and the role of radical reactions in several biological systems. It is composed of eight chapters: the first two chapters deal in a simple and understanding way with oxygen toxicity and the chemistry of oxygen radicals and other oxygen-derived species. The other chapters focus on protection against oxidants in biological systems; lipid peroxidation; protection against radical damage (e.g. the chloroplasts of higher plants and the mammalian eye); and the importance of oxidants in the mechanism of action of several toxins. Free radicals as useful species, in ageing and in several diseases are also discussed. This book is a useful reference work for researchers in this field, especially biologists, clinicians and chemists.

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