

## BOOK REVIEWS

**Dictionary of Analytical Reagents:** A. TOWNSHEND, D. T. BURNS, G. G. GUILBAULT, R. ŁOBIŃSKI, Z. MARCZENKO, E. J. NEWMAN and H. ONISHI (editors), Chapman & Hall, London, 1993. Pages: xxix + 1370. £595.00. ISBN 0-412-35150-1.

The publishers, Chapman & Hall, have produced a number of very large A4-size dictionaries devoted to various fields of chemistry. This work provides information on over 5000 analytical reagents and as most of the compounds are organic the text is uniform with entries in the fifth edition of the *Dictionary of Organic Chemistry*. The main text, as expected, consists of reagents arranged alphabetically and each entry is numbered. Many reagents are included as derivatives, for example, under 1-naphthol the acetyl, benzoyl and 3,5-dinitrobenzoyl derivatives are mentioned. For each of the main entry reagents chemical names, synonyms including trade names, a molecular structure diagram, analytical uses and selective bibliographies are normally presented.

Four indexes are included at the end of the dictionary. A *Name Index* lists in alphabetical order all reagent names and synonyms including stereoisomeric forms and derivatives. A *Molecular Formula Index* and a *CAS Registry Number Index* are also present. Of particular interest is the *Type of Compound Index* which classifies nearly all reagents listed under one or more of three headings: analyte (element, e.g., copper, or organic compound, pesticide), compound group (e.g., EDTA-type compounds) and Use (e.g., titrant).

As stated on the inside sleeve of the book coverage extends to metal extractants and spectrophotometric reagents, indicators, fluorescence labelling reagents and reference standards, buffers, gc and ms derivatization reagents, amperometric reagents, biological stains and dyes. Excluded from the dictionary are macromolecular materials (e.g. enzymes, ion-exchange resins and antibodies) which cannot readily be defined by a molecular formula.

There are two useful, but short, introductions which describe the main applications and classes of analytical reagents. The amount of information given for each reagent varies and only the melting point of a derivative may be presented. Typically one two-column page of the dictionary gives information on about five main reagents. Analytical uses are described briefly and typical examples include: "used in detn of water", "used as a chelating agent" and "used as a 1% soln in EtOH for gravimetric detn of Cu(II)". More detail is given for some of the more common reagents and  $\lambda_{\max}$  values are included when photometric use is indicated. The source of reagents which are natural products (e.g., strychnine, starch, sucrose) is also given. Reference to the literature is essential for detailed information and the contents of each literature citation is indicated by an abbreviation (e.g., synth, props, struct, etc.).

I chose some reagents at random and checked the dictionary for their inclusion. First of all DCTA which I had used for Al analysis—it was there with synonyms, isomeric forms and 13 literature references including the 1955 work by Pribil. I was impressed. Next sodium tetraphenylborate which I had once used as an alternative to the official pharmaceutical analysis of cetrime—again it was present, several uses were listed and 10 literature references were given. Finally I chose ninhydrin—again it was included with the sought-for-statement that it can be used as a sensitive reagent for determination of amino acids and related substances.

Overall a very welcome addition to the literature on analytical chemistry and just the type of compilation that would be suitable for a CD-ROM. Too expensive for purchase by the individual but certainly recommended for the library.

P. J. Cox

**The Kirk-Othmer Encyclopedia of Chemical Technology:** Volume 6, Fourth Edition. Chlorocarbons and Chlorohydrocarbons-C<sub>2</sub> to Combustion Technology. J. I. KROSCHWITZ and M. HOWE-GRANT (editors), Wiley-Interscience, Chichester, 1993. Pages: xxviii + 1072. £150.00. ISBN 0-471-52674-6 (v.6).

Each volume of this encyclopedia is approximately the same size and contains roughly the same number of chapters. Volume 6 covers 30 topics—all beginning with the letter "C"—by numerous authors based mainly in the U.S.A. Four topics occupy more than half the volume: colour (199 pages), coal (173 pages), coatings (166 pages) and chlorocarbons and chlorohydrocarbons (140 pages). The latter topic continues from Volume 5.

This volume differs from the previous five in that 10 colour plates are included. The treatise on colour starts with some fundamental concepts and proceeds to discuss colourants for: ceramics, food, drugs, cosmetics, medical devices and plastics. The chemistry of colour photography is also covered in some detail. Technological aspects of coal—carbonization, desulphurization, gasification and liquefaction—are also mentioned in detail.

I found it somewhat disappointing that given the length devoted to other topics the whole of chromatography—one of the most important techniques for those working in analytical chemistry—was summarized in only 22 pages. However, several texts on chromatography for further reading are given in the bibliography at the end of the appropriate chapter.

A separate chapter is devoted to the phenylpropanoids: cinnamic acid, cinnamaldehyde and cinnamyl alcohol. Similarly, citric acid and choline are dealt with separate chapters as are chlorohydrins, chlorophenols and chlorosulphuric acid. The only element and its compounds specifically covered in this volume is chromium. Other chapters deal with chocolate, coffee, clays and colloids.