

REVIEWS

Thin-Layer Chromatography. Edited by EGON STAHL. Springer-Verlag New York, Inc. 175 5th Ave. New York, NY 10010, 1969. xxiv + 1041 pp.

Egon Stahl's *Thin-Layer Chromatography* (second edition) is the most complete and current compilation of TLC theory and practice available today. The book, published in 1967 in German, is an expansion of his first work, organized in much the same manner. There is the same review of nomenclature before each compound class, the same history, and a much expanded theory section covering new apparatus and additional techniques.

The book has a much more complete section on heterocyclic nitrogen compounds than Kirchner's *Thin-Layer Chromatography*. Phenothiazines, the diazepines, carbamate esters, compounds of antihistamine activity, and the narcotics are all more thoroughly covered by Stahl than in the other available books on the market. Moreover, most charts list the structural formula where feasible or the chemical name of the compound in addition to its common name. The amino acid section is also well done. There is an extensive listing of general test conditions and solvent systems for these compounds.

The volume, however, is not specific in its treatment of the steroids. For the most part, it lists general systems for the various groupings of steroids and does not treat each drug individually. An incomplete and inconsistent index is also a hindrance, varying between listing drugs as to their activity, group name, or the name of one compound in the group. However, no existing TLC handbook approaches the amount of data contained in this volume and, as such, this work is a definitive addition to any TLC library.

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Cationic Surfactants. Vol. 4. Edited by ERIC JUNGERMANN. Marcel Dekker, New York, NY 10016, 1970. xiv + 652 pp. 16 × 23.5 cm. Price \$37.50.

This, the fourth volume in Dekker's Surfactant Science Series, is concerned with the organic, physical, and analytical chemistry of cationic surfactants. A fourth section deals with the biological aspects of this class of surfactants.

The eighteen authors are drawn from both industry and the universities. Following an introductory chapter, the next six chapters deal with the synthesis of straight chain and cyclical alkylammonium compounds, petroleum-derived and polymeric forms, and nonnitrogen-containing surfactants. Brief references to the applications, physical properties, and toxicities of the compounds under discussion are made. As would be expected, major emphasis is placed on commercial products. Considering the potentially unexciting subject matter, the presentation is clear and readable.

There then follows a group of six chapters concerned with the physical chemistry of cationic surfactants. Specific topics covered are micelle formation in aqueous and nonaqueous media, adsorption by a variety of substrates, and coacervation. A brief section on adsorption on biological substrates has obvious pharmaceutical implications. In most cases the treatment is sufficiently basic; inevitably, much of the discussion is common to all classes of surfactants.

A single chapter comprises the section on the analytical chemistry of cationic surfactants. The approach taken is a practical one, with emphasis placed on methods that have been developed for carefully purified surfactants. The chapter considers both qualitative and

quantitative aspects of analysis. Most discussion of the latter centers around absorptiometric, volumetric, and gravimetric analysis.

The final section, on the biology of these compounds, contains two chapters that review the germicidal properties and toxicology, respectively, of cationic surfactants. In the chapter on germicidal properties, little consideration is given to a discussion of the mechanisms of action involved. However, the descriptive literature in this area is covered satisfactorily. Cationic surfactant toxicology is well summarized in the final chapter, which also contains a comprehensive listing of reported toxicities.

While this text undoubtedly represents a comprehensive presentation on cationic surfactants, its major appeal to the pharmaceutical scientist will probably be limited to the last two sections which comprise approximately one-third of the total material.

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Pharmaceutical Chemistry, Volume 2: Instrumental Techniques.

Edited by L. G. CHATTEN. Marcel Dekker, Inc., 95 Madison Ave., New York, NY 10016, 1969. xiv + 773 pp. 17 × 24 cm. Price \$17.75.

Eighteen authors and the editor have collaborated to present 19 chapters in this second volume of a two-volume set on the analytical aspects of pharmaceutical chemistry. When the objectives stated in the preface are compared with the final written work, this reviewer finds that, in general, the mission has been accomplished. In an attempt to evaluate this book, each chapter has been examined and the following comments are respectfully set down.

The chapters may be conveniently divided into three groups: (1) topics involving electromagnetic radiation; (2) topics dealing with electrochemistry; and (3) subjects not classified as either (1) or (2). In many cases, questions, problems, and answers as well as experiments have been provided.

The first group of items is concerned with analytical techniques utilizing electromagnetic radiation in its various forms. The first two chapters concerning absorption spectrophotometry in the visible and ultraviolet region and in the infrared are well written and employ pretty much the standard approach to the subjects. In the first case, spectrophotometric titrations and a welcome treatment of the chemistry of chromogenesis in some colorimetric analyses are included. The presentation of structure-spectra correlations is done well; unknown spectra are provided for practice and study.

In both chapters, the experiments are appropriate but the instrumental features receive only brief attention. Raman spectroscopy, becoming more useful as instrument prices diminish, is discussed in a separate chapter. The theory is examined carefully and requires an appreciation of group theory and fundamental spectroscopy for adequate understanding. At present, no good examples of the application of this technique to pharmaceuticals are evident.

In the division of fluorometry, the explanations of theory, derivations of equations, and the examination of pharmaceutical examples are excellent. Particularly noteworthy is the portion discussing spectra-structural correlations. The choice of experiments includes the study of the physiological availability of riboflavin. The 16 pages of the atomic absorption chapter are used with efficient economy, the various points being well presented. This simple technique is certain to be used to a much greater extent than it is today. The qualitative elucidation of the nuclear magnetic resonance phenomena is clearly written as is the section of interpretation of spectra, so very useful in organic compound identification. There is little quantitative work in this area, however. Turbidimetry and