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previous conversion to fatty acid methyl esters. Moreover, the glycerol "esters" of the title turn out to be glycerol "ethers" in the context. Other applications listed include the gas chromatographic analysis of alcohols, aldehydes, ketones, esters and amines, as well as human, animal, plant, insect, bacteria and yeast lipids. Finally, the analysis of steroids is described in some detail. The relative retention time of a long list of steroids is given.

This article, with its 425 references will be useful to those interested in the analysis by gas chromatography of lipids of biochemical significance.

The second article of the book is a review on the nutritional effects of antioxidants. The effects of these compounds in several experimental animals and in man are discussed. Other topics reviewed are the deposition of antioxidants in body tissues, their effect on enzyme function and on lipid peroxidation, and the antioxidant activity of the tocopherols. These topics have been attracting considerable attention in the past few years and their review is certainly timely. Those working in such fields as lipid preservation in foods, lipid nutrition and vitamin E metabolism will benefit from this contribution.

In the third article of the book the group of coenzymes Q is described. Its structural characteristics, synthesis, isolation, assay, separation, distribution in nature and in the cell, function in the electron transport chain, and oxidative phosphorylation, and function as vitamins are discussed. A scheme for the biosynthesis of coenzyme Q is given, and various derivatives are characterized. A discussion of practically the same topics can be found in a previous review by Hatefi (*Adv. Enzymol.* 25, 275 (1963)).

The order of the chapters in the book is different from that given in the cover and the front page. No index is included.

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HANDBOOK OF INDUSTRIAL INFRARED ANALYSIS, by R. G. White (Plenum Press, 439 pp., 1964, \$19.50).

Recent years have seen the publication of a considerable number of books on infrared spectroscopy. For the investigator whose primary interest lies in application of infrared spectroscopy to a particular field of chemistry, it is not always easy to select the proper volumes for study and reference. The distinguishing characteristic of the present work is that it is essentially a handbook, not a text. Emphasis is decidedly on practical analytical applications. An absolute minimum of theoretical background is offered. The form of presentation is extremely concise, at times approaching telegram style. An extensive bibliography contains over fifteen hundred references. The book contains very useful guides to existing collections of infrared data, to review articles, and books. The comments offered in this connection reflect the overall approach of the Handbook. Thus, the basic work by Wilson, Decius and Cross is recommended for those who "... either can enjoy or must endure the theory of infrared and Raman spectra."

The Handbook is divided into seven chapters: History, Theory and Terminology; Instrumentation; Techniques; Qualitative Analysis; Quantitative Analysis; Applications; Literature. The first chapter gives the essentials of terminology and a very brief introduction to the physical

phenomena underlying infrared spectra. The instrumentation section is much more detailed and describes at some length the optics and performance of a considerable number of domestic and foreign instruments. The chapter on techniques is by far the longest one in the book. Various types of cells, mulling and pressing techniques, as well as some more specialized topics such as matrix isolation methods and polarized radiation, are covered.

A word of caution might be in place concerning the chapter on qualitative analysis, which offers a large number of correlation tables on group-frequencies. Such tables are of unquestionable value but, to quote Bellamy (*The Infrared Spectra of Complex Molecules*, p. 3): "It cannot be too strongly emphasized that the indiscriminate use of . . . summaries for correlation work without reference to the detailed work on which they are based can only lead to error." By studying enough correlation tables almost any complex spectrum can be "interpreted" in a great number of ways. Numerous references are given in the Handbook. They should be consulted.

The chapter on quantitative analysis is, in contrast to some other parts of the book, lucidly written and well suited as an introduction to this topic.

The most useful feature to the analytical spectroscopist is probably Chapter 6, "Applications." It is essentially a guide to literature, organized along somewhat unconventional lines. Various areas of application are covered in alphabetical order under 60 subtitles such as: Acids, Absorbed Phases, Air Analysis . . . , Esters, Ethers, Fats and Oils . . . , Tobacco, Water.

Although termed a "Handbook," the work does contain some statements which obviously reflect somewhat subjective opinions of the author. Thus, on p. 138 the KBr technique is called the best sampling method for solids. There also are occasional imprecise statements. On p. 243 the legend for Figure 5.1.1.1.2. reads: "Linear plot of transmittance vs. concentration." The plot itself exhibits a considerable curvature, as it should.

The *Handbook of Industrial Infrared Analysis* contains a considerable amount of information in a condensed form. It constitutes a concise guide to the various techniques and instruments encountered in analytical infrared spectroscopy. Theoretical aspects are deemphasized. Comments occur throughout the book which, understandably, occasionally seem to reflect personal preferences and attitudes of the author (No smoking in instrument rooms!). The literature dealing with infrared analysis in various areas of practical importance is extensively covered, including oils and fats. The book should prove very useful as a guide to literature on practical infrared analysis.

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Statistics and Design of Experiments Courses Set for Rochester

Registrations are being accepted for the 22nd Annual Statistical Techniques in Quality Control and the 13th Annual Design of Experiments courses for the chemical and processing industries, sponsored by Rochester Institute of Technology (Rochester, New York) and scheduled to be held at the Institute on June 14-23 and June 22-30, respectively.

Heading a distinguished faculty for the two seminars will be M. E. Westcott, Professor of Applied Sciences at Rutgers-The State University; F. C. Malone, Professor of Statistics and Acting Head, Dept. of Mathematics, Case Institute of Technology; and A. D. Rickmers, School of Photography faculty member at R.I.T.

Inquiries regarding registration may be sent to James H. Swanton, Extended Services Division, Rochester Institute of Technology, Rochester, N. Y. 14608.

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