

VOL. 524 NO. 1 FEBRUARY 16, 1990

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Analytical Absorption Spectrophotometry in the Visible and Ultraviolet: The Principles

by L. Sommer, J.E. Purkyne University, Brno, Czechoslovakia

(*Studies in Analytical Chemistry*, 8)

Despite the many competitive analytical techniques, molecular absorption spectrophotometry is still very popular in practice, particularly in biochemical, clinical, organic, agricultural, food and environmental analyses. This is due mainly to the inherent ease and relative simplicity of spectrophotometric procedures and the availability of reliable, highly-automated instruments. Moreover, both the method and its instrumentation have recently undergone considerable development resulting in some new special approaches of spectrophotometry in the ultraviolet (UV) and visible (VIS) regions. Although there are several comprehensive textbooks on UV/VIS spectrophotometry, they tend to describe historical aspects or contain collections of detailed procedures for the determination of analytes and do not reflect sufficiently the present state of the method and stage of development reached.

This new book provides a concise survey of the actual state-of-the-art of UV/VIS spectrophotometry. Special attention is given to problems with the Bouguer-Lambert-Beer law, absorption spectra, present trends in instrumentation, errors in spectrophotometry, evaluation of analyte concentration and calibration, optimization procedures, multi-component

analysis, differential spectrophotometries, problem of blanks, derivative and dual-wavelength spectrophotometry, spectrophotometric titration, the strong relations between complex formation and spectrophotometry, spectrophotometric investigation of complex equilibria and stoichiometry or automation in spectrophotometry. The significance of spectrophotometry in connection with liquid-liquid extraction, reaction kinetics, trace analysis, environmental and clinical analysis is also covered.

The text is supported by tables and figures, and there are numerous references for each topic treated. The book is written for all those who use UV/VIS spectrophotometry in the laboratory and will also be useful to students as supplementary reading.

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by **Motoyuki Suzuki**, *Institute of Industrial Science,
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(Chemical Engineering Monographs, 25)

Recent advances in chemical engineering in the fields of adsorption and porous bodies have now made it possible to estimate accurately many of the parameters for the design of adsorption systems. The author of this book has worked on various aspects of adsorption from the viewpoint of basic phenomenology and applications to separation processes in chemical industry and environmental pollution control. He has written this book with the aim of establishing a basic chemical engineering methodology for adsorption process design. Throughout the book, activated carbon is used as the main example of adsorbent in the application of the methodology and principles, although topics on special adsorbent systems are also included to cover modern development of adsorption technology. The general principles are applicable to any adsorption process used in practical systems.

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60330c, 70089v, 70096v, 70097w, 80888u, 89461g,
93482g, 93485k, 99473b, 100023p, 116262b, 116264d,
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See also 131, 157, 158, 168, 170, 174, 175, 176, 178, 179, 187, 253,
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See 3.

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11. ORGANIC ACIDS AND LIPIDS

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15. TERPENES AND OTHER VOLATILE AROMATIC COMPOUNDS

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18. AMINO ACIDS AND PEPTIDES; CHEMICAL STRUCTURE OF PROTEINS

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20. ENZYMES AND ENZYME ACTIVITY ESTIMATION

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21. PURINES, PYRIMIDINES, NUCLEIC ACIDS AND THEIR CONSTITUENTS

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See also 874, 894, 896.

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See also 765, 875.

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See also 216, 370, 900, 1018, 1185.

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See also 827.

33. CLINICO-CHEMICAL APPLICATIONS

33b. Complex mixtures and profiling (single compounds by cross-reference only)

See 9, 281, 293, 295, 316, 338, 339, 348, 349, 353, 381, 385, 386, 391, 392, 393, 407, 409, 411, 413, 424, 426, 427, 449, 528, 534, 545, 555, 556, 559, 577, 585, 676, 694, 700, 727, 775, 776, 783, 784, 825, 876, 989, 1186.

34. FOOD ANALYSIS

34a. General papers and reviews

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See also 134, 879.

34b. Complex mixtures (single compounds by cross-reference only)

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35. ENVIRONMENTAL ANALYSIS

See 191.

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See also 195, 908.

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Gas Chromatography

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3. GENERAL TECHNIQUES

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18. AMINO ACIDS AND PEPTIDES; CHEMICAL STRUCTURE OF PROTEINS

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See 377.

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- See also 156, 285.

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See also 156, 435.

35d. *Soil pollution (complex mixtures; single compounds by cross-reference only)*

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36. SOME TECHNICAL PRODUCTS AND COMPLEX MIXTURES

36a. *Surfactants*

See 319.

36b. *Antioxidants and preservatives*

See 366, 479.

36c. *Various technical products*

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19. PROTEINS

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20. ENZYMES AND ENZYME ACTIVITY ESTIMATION

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21. PURINES, PYRIMIDINES, NUCLEIC ACIDS AND THEIR CONSTITUENTS

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See 111.

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PUBLICATION SCHEDULE FOR 1990

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