

BOOK REVIEWS

N. G. GAYLORD, Editor

Surface Activity: The Physical Chemistry, Technical Applications and Chemical Constitution of Synthetic Surface-Active Agents, 2nd ed., J. L. Moilliet, B. Collie, and W. Black. D. Van Nostrand Co., Inc., London, 1961, xvi + 518 pp. \$15.00.

This book undoubtedly will prove as useful in many industrial laboratories dealing with detergents as was the first edition, now ten years old. The description of the chemistry of surface-active agents occupies over 140 pages and contains references to many hundreds of patents. The part outlining the uses of these materials is about as long; it contains a chapter on "the dispersion of solids in liquid media" (describing ball mills, etc.), a few pages on the emulsifying machinery, and so on, but only a surprisingly brief account of foamers.

The largest part of the book is devoted to fundamentals, particularly to formation and structure of the micelles in the aqueous solutions of surface-active compounds, adsorption of these compounds at solution-air and solution-solid interfaces, wetting, emulsification and foaming. Some of the topics included are treated very summarily; e.g., less than two pages are granted to the protective action of colloids. The explanation of this brevity apparently lies with the authors' approach to literature. A textbook writer can extract whatever he needs from a published paper without commenting on the paper itself, but the authors often discuss papers rather than experimental data, and this takes up much more space than the alternative treatment. For example on page 316, the reader is warned for thirteen lines not to misunderstand a phrase in a magazine article although this phrase was not at all required in the context.

The tendency to impartial recording of contradictory opinions sometimes results in a rather blurred picture. For instance, we are told on page 126 that "there has never been any doubt of the inadequacy of any theory based on simple diffusion" for slow aging effects in surface tension, while on page 130 is stated that "the view that slow surface-aging effects are due to the diffusion . . . is . . . supported . . ."

The reviewer has serious reservations in respect to the thermodynamic treatment given by the authors to adsorption and wetting but, obviously, cannot elaborate in this short review.

J. J. Bikerman

Department of Civil Engineering
Massachusetts Institute of Technology
Cambridge, Massachusetts

Infrared Spectroscopy. Its Use as an Analytical Tool in the Field of Paints and Coatings. Infrared Spectroscopy Committee of the Chicago Society for Paint Technology, 1350 South Kostner Avenue, Chicago 23, Illinois. Federation of Societies for Paint Technology, Philadelphia 7, Pa. 160 pp.

The use of infrared spectroscopy as a valuable tool in both research and the solution of everyday analytical problems has increased manyfold in recent years, especially with the availability of low-cost infrared spectrophotometers.

The paper-bound pamphlet under review is reprinted from the March 1961 issue of *Official Digest* and was prepared as a laboratory manual for the paint chemist. The objective was "to lead the paint chemist over the initial hurdles of spectroscopy to help overcome the reluctance of the paint industry to enter into infrared methods of analysis."

The Committee has attempted to fulfill its objective by setting forth principles and techniques on a level that introduces the subject to the uninitiated. A brief discussion of the theory is followed by descriptions of the sample and cell-handling techniques. A qualitative analysis section, including the analysis of an "unknown" spectrum, and a quantitative analysis section are followed by an appendix giving 195 reference spectra of binders, pigments, and solvents most often encountered in paints and coatings.

This manual is recommended to anyone interested in an introduction to the use of infrared spectroscopy as an analytical tool even beyond the area of paints and coatings.

Norman G. Gaylord

Gaylord Associates Inc.
20 Mt. Pleasant Avenue
Newark, New Jersey

Introduction to Petroleum Chemicals, H. Steiner, Ed. Pergamon Press, New York, 1961, x + 200 pp. \$8.00.

A series of lectures given at the Manchester College of Science and Technology in 1960 is the basis of this introduction to petrochemicals. The lecturers were chemists and chemical engineers from British industry. They express the European viewpoint concerning the rapidly expanding field of petrochemicals. In less than 200 pages, the intermeshing of processes and products is portrayed: cracking and separation processes for olefins, products and polymers from ethylene and propylene, production and use of isobutylene and butadiene, aromatics from petroleum, styrene, and